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ORIGINAL LECTURES.

INTERSTITIAL NEPHRITIS, WITH HYPERTROPHY OF THE HEART AND HEMORRHAGE INTO THE BRAIN AND NASAL MUCOUS MEMBRANE.

Abstract of a Clinical Lecture delivered at the Montreal General Hospital.[1]

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GENTLEMEN: It is my purpose this morning to occupy your attention with the consideration of the clinical history of a case which you all have had an opportunity of watching for the last six months or more, the physical signs of which you have had repeated opportunities of examining for yourselves, and you have noted from day to day the steady progress of the morbid processes. The patient I allude to is Eliza H., now in No. 24 ward, a small, spare woman of about forty years of age, who entered the General Hospital on the 9th of September, 1885, complaining then of certain definite symptoms—symptoms which ought to have led and did lead us directly to the diagnosis of the disease. These were increasing debility, a slight cough, frequent and severe attacks of epistaxis, sickness, and vomiting, usually at its worst in the early morning. And in addition to these, for two months previously her feet had been swollen.

Now let us consider the meaning of these complaints of hers. Her age is that for visceral disease; diseases of the kidney and liver and malignant disease belong to this period of life. The physical examination of the lungs will tell us the meaning of the cough, but the combination of morning vomiting, bleeding of the nose, and dropsy of the feet is very significant, and points to renal disease, more especially that form known as the contracted kidney. Non-traumatic epistaxis is always a symptom deserving of close investigation; occurring, as in our case, in a person of forty, it always means mischief. The venous system is overloaded, or the arteries are brittle, or the heart is enlarged and too strong for the arteries, hence we meet with it as a symptom in portal obstruction when the venous channels are all too full, and in heart diseases, more especially when the left ventricle is hypertrophied, and, lastly, in Bright's disease, where two causes work together. Not only is the heart-muscle too strong but the bloodvessels are too weak, and so breakages are apt to occur in weak places; one of these is the nose, the other the brain, as we shall presently have an opportunity of seeing.

Sickness at the stomach and morning vomiting occurring in a person of forty, should excite suspicion. There are three common causes. Pregnancy is one, but that, it has been ascertained, is not her condition. Alcoholism is a common and often an overlooked cause of this kind of dyspepsia, especially in the form of dram drinking. We are assured of her temperate habits. Visceral disease is the third main cause, and this leaves us to investigate the question as to which organ is the seat of disease. In the very early stages of contracted kidney as well as in an early stage of interstitial hepatitis, we meet with morning nausea and vomiting. It will rest with the remainder of our examination to decide as to which of these conditions is present.

Œdema of the feet points most commonly to cardiac complications. Remember the broad rule that dropsy of the feet alone means heart, dropsy of the belly alone means liver, and dropsy of all the body means kidneys.

The illness altogether dates back two years, ever since she came to this country. Previously she had always been in very good health. For the last seven years has been widowed. Had several children, with hard labors, and four miscarriages.

The very first symptom which made its appearance, was dyspnœa upon exertion, which was soon followed by dropsy of the feet, a slight cough; night sweats, and loss of flesh; occasional epistaxis, and the morning vomiting. For the relief of these she entered the Montreal General Hospital two years ago. It was found noted in the case book, that, although there was evidence of cardiac hypertrophy, there was none to show that the kidneys were implicated. In the summer of 1885 she was again a patient here, and came for the first time under my care. She was then slightly anæmic, the muscles flabby and soft, the tongue moderately coated, the bowels constipated. The pulse beat at ninety to the minute, but its character was noteworthy. It was unusually full and strong, hard and incompressible; in fact, it was the "pulsus durus et tardus et magnus," the renal pulse. Such a pulse would make one suppose that there existed a hypertrophied heart, and such, indeed, was the case; for the impulse was strong and heaving, and pulsation was visible in all the superficial arteries. The apex beat could be felt just inside the left nipple line in the left intercostal space, and the area of superficial cardiac dulness was correspondingly increased.

On auscultation, no murmur was heard, though at times it was observed that the first sound was accentuated. Both sounds were unusually loud. Physical examination of the lungs and abdomen yielded negative results.

We were now able to exclude liver and lung disease from our diagnosis. A hypertrophied heart existed, probably without valvular disease, a condition not very often met with apart from disease of the kidneys. To determine this the urine must be examined. The total quantity passed per diem was in excess of the normal. The fluid itself was of normal color, with a heavy mucous cloud. Sp. gr. 1.020; acid reaction; no sugar. On adding nitric acid, and boiling, the urine becomes slightly

[1] Delivered in the regular course of Clinical Lectures in the Summer Session of 1886.

cloudy, and when allowed to cool and settle, this cloudiness sinks and resolves itself into a very distinct sediment. Hyaline casts in small numbers were found on microscopical examination, together with a considerable quantity of renal epithelium and oxalates.

From this examination the important fact of the presence of albumen is learnt. What, in this case, is the likely cause? It depends upon disease of the kidney, because there is evidence of kidney degeneration in the presence of hyaline casts. Otherwise it might be argued that the condition of the heart caused the albuminuria, as is indeed often the case. Moreover, the symptoms not only point to renal disease generally but to one particular form, that known as interstitial nephritis or the granular kidney. The distinctive points in the history, as given so far, being 1. The initial symptoms, the dyspnœa the first symptom as it often is, the gastric disturbances, the epistaxis, the œdema of the feet. 2. The condition of the circulatory organs, hypertrophy without valvular disease, and generally increased arterial tension. 3. The urine is characteristic and makes the diagnosis almost certain. The large quantity, the low specific gravity, not so low as commonly noted in such cases, but still low, and the small amount of albumen. In the other form of chronic nephritis known as the large white kidney, which closely resembles the disease of which we are speaking, the amount of urine is smaller and the albumen is in it in large proportion. And, lastly, casts of the hyaline variety were found. The presence of hyaline casts with albuminuria may be taken as a sure indication of structural renal disease.

The ophthalmoscopic changes so frequently met with did not occur in our patient.

During the summer of 1885 the progress of the disease was stationary, but in the early autumn severe stomatitis set in, accompanied by such depression of the general strength that a fatal result from exhaustion at one time seemed imminent. There was extensive ulceration of the mucous membrane of the mouth, the gums receded from the teeth leaving the teeth loose, so that some of them had to be removed. A large ulcer threatened to destroy the floor of the mouth and gave rise to several severe hemorrhages. This is an uncommon affection, and, so far as my knowledge goes, has no connection with the renal disease.

Mrs. H. having recovered from the stomatitis, left the hospital and went into service.

So far, then, we have the history of a case of granular kidneys with hypertrophied heart and rigid vessels. What are the probabilities of such a case? A too strong heart with too brittle arteries: a break is likely to occur somewhere. She did well until last February (1886), when she found her left hand very weak, and a few days after noticing this she awoke one morning to find her whole body numb. Shortly afterward cramps set in in both limbs, but after a time the left side became entirely helpless. She remembers nothing further until she found herself back again in the hospital for the third time. What was the nature of this seizure? Was it embolic, hemorrhagic, or uræmic?

It is likely to have been embolic, on account of the heart lesion, a strong suspicion having always existed of the presence of valve disease, but hemorrhage was much more probable. In chronic Bright's disease, especially that form of it which in this case we believe to exist, there is a chronic affection of the vessels, the result of which is that they become brittle and unyielding, a little extra force, and they break, and hemorrhage occurs. This change in the vessels, of the nature of which your instructor in pathology will inform you, is accompanied by high arterial tension, giving rise to a pulse the characters of which have been already described. Now both these conditions are accompanied by a hypertrophied heart, so that I am correct in saying that hemorrhage is a likely event, and such is the result of observation in such cases. The vessels give way where least supported, that is most commonly in the soft structure of the brain itself, or in the mucous membrane of the nose. You must remember that in the latter situation hemorrhage has already occurred.

As to the uræmia having been the cause of the seizure, I think it unlikely. There were no convulsions observed, which is the form of attack commonly adopted, and there was distinct and persistent hemiplegia, a remarkably rare occurrence in uræmia, so rare that you need not take it into consideration.

We must, therefore, add to our diagnosis hemorrhage into the right side of the brain. On the 18th of February, the day of her third admission, the patient was in a condition of semi-coma with left hemiplegia. The mouth was drawn to the right side; the tongue deviated to the left; pupils sluggish; left arm powerless, and devoid of sensation; left leg paretic. Plantar and patellar reflex both present. Sonorous râles were heard in both interscapular legions, but in other respects there were no changes in the physical signs. The amount of albumen in the urine had greatly increased, and the hyaline casts had become more numerous.

In this condition our patient remained for two months, the hemiplegia gradually disappearing until she could raise the left arm to the chin, when a condition of chronic uræmic poisoning set in, and in that state she now lies.

When we made our visit a week ago we found the patient in a very serious condition. She complained of severe headache and oppressive drowsiness, the two symptoms by which, in most cases, fatal uræmia is ushered in. On closer examination it was found that she had had slight tremors in the affected arm and leg, which lasted but a few moments. Since that time she has remained in a condition of chronic uræmia, the sleepiness and the headache remain, and it was noted that the latter was especially painful in the front of the head, a characteristic of uræmic headache. At times, additional hemorrhages occur from the nose, and there have been lately several profuse ones. The specific gravity of the urine has become lower, being now 1.010, and albumen is present in much larger proportions. Her condition is now critical, another cerebral hemorrhage and a fatal result may ensue, or, what is more likely, the uræmia may deepen, and death in a comatose condition occur.

Postscript.—The death of the patient in a comatose condition occurred some two weeks after the delivery of this lecture. Both kidneys were contracted, the heart hypertrophied. There were a few spots of atheroma in the aorta, and the mitral valves were decidedly roughened. In the right hemisphere of the brain the remains of a large blood clot were found, showing the cause of the hemiplegia.

ORIGINAL ARTICLES.

FURTHER OBSERVATIONS ON THE BLOOD IN CASES OF MALARIAL FEVER.[1]

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IN view of the frequent publications which have of late been made in this field, it will not be necessary to give more than a cursory review of the literature. Omitting the publications of Klebs and Tommasi Crudeli on the bacillus malariæ, the first publication in which an organism is described differing from this and apparently belonging to an altogether different group of organisms, was made by Lavaran in 1881. He described in the blood of malarial patients an organism which he named the oscillaria malariæ. It appears under four forms, which, though differing from one another in size and shape, he regards as different stages of development of the same organism. He describes them as bodies No. 1, 2, 3, and 4, respectively.

Body No. 1. Usually of a crescentic shape, slightly longer than a red blood-corpuscle, with pigment granules in the centre which are generally arranged in circular form.

Body No. 2. Small circular bodies smaller than a red corpuscle to which they are usually attached, sometimes occurring singly, at others in groups of two or four. They contain pigment granules arranged in a circle.

Body No. 3. Somewhat smaller than a red corpuscle, of round or slightly irregular outline, pigmented in the centre, and provided with three or four long cilia by means of which they move rapidly in the blood. In addition to these ciliated organisms there are free cilia which move rapidly through the blood.

Body No. 4. Similar to body No. 3, but has no cilia, and apparently represents the cadaveric form of body No. 3.

Lavaran supposes the free cilia in the blood to be the adult form of the organism, the other forms representing stages in its development. In the scheme that he forms the cilia develop in bodies No. 1 and 2, finally pierce the enveloping membrane, remaining attached by one end (body No. 3), and after a time sever their connection with this and become free. The hull remaining after the escape of the cilia is body No. 4.

Next to Lavaran's, the most important publication is that of Marchiafava and Celli made two years later. These authors describe as constant in the blood of malarial patients an amœboid organism, whose habitat is inside the red blood-corpuscles. Its most striking feature is the amœboid movements. It changes both its shape and relative position inside the corpuscle, and is always found during the paroxysm of intermittent fever in patients who have not taken quinine. Its size varies in wide limits, sometimes pigment granules are found irregularly distributed through it, especially if the blood examination is made at the termination of the paroxysm. In addition to this body they saw the crescents discovered by Lavaran and ciliated organisms, the latter but four times in the first forty-eight cases examined and not once in one hundred and twenty cases examined afterward. They regard the amœboid organism, the credit for the discovery and exact description of which certainly belongs to them, as the pathogenic organism in the disease, and have named it the plasmodium malariæ.

In an article which appeared in the *Medical Record*, for May, 1886, Dr. Sternberg reports a case in which he discovered the plasmodium in blood taken from a patient in the beginning of a paroxysm of intermittent fever. In a paper read before the Association of Physicians and Pathologists in June, 1886, I have reported sixteen cases of acute intermittent fever, in all of which blood taken during the paroxysm contained the plasmodium. All these observations were made on acute cases and *only* the plasmodium was found.

During the present autumn good opportunity was given me for a further study of the blood, there being an unusual number of cases of malaria at Bay View Asylum, which were kindly turned over to me by Drs. Atkinson and Rohé, the physicians in charge. In all, 80 cases were examined, some of these on ten or more separate occasions and others but once. The 80 cases embraced all the forms of malarial disease common to this section. I have divided them into cases of intermittent fever, remittent fever, malarial cachexia, and comatose malarial fever, the *fievre comateuse pernicieuse* of French authors. The blood in most cases was examined fresh, although numerous examinations were made after drying on the cover slip, and subsequently staining with some of the aniline colors.

The cases of intermittent were nearly all of the tertian form, only a few, 4 in all, were quotidian. There is considerable difference in the blood in intermittent fever depending on the length of time from the beginning of the attack. In the first days of the attack plasmodia are found only during the chill. They are small, and extremely difficult to see, the difficulty being increased by irregularities on the surface of the red corpuscles and a vacuolation, or what appears to be this, inside of them. They may or may not be pigmented, the pigmented forms being seldom found in the first few paroxysms, but later most of them are pigmented. The plasmodia appears as pale homogeneous masses inside the red corpuscles. They are either round or irregular in shape, the irregularities taking the form of round knob-like projections. Their size varies from one-third to one-fourth the diameter of the corpuscle up to a size almost or wholly filling the corpuscle, which in this case is larger than ordinary and almost completely deprived of pigment. Sometimes the corpuscle apparently contains two or more of these bodies, but on staining it is seen that the apparently isolated masses are connected by extremely slender protoplasmic filaments.

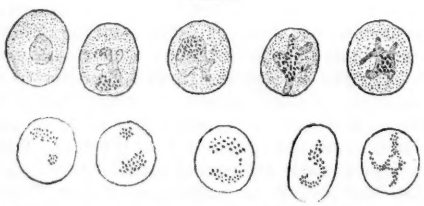
The index of refraction of these bodies is almost the same as that of the blood corpuscle which contains them, and they are most easily seen when round. The most remarkable thing about them is their

[1] Read before the Clinical Society of Baltimore, November, 1886.

amœboid motion. This is readily seen, and takes place with about the same rapidity as the movements of the ordinary fresh water amœba. While watching them I have seen them disappear, and then slowly reappear in the corpuscle. This is easily explained by their spreading out in a thin layer, their refraction then being so low that they cannot be distinguished from the surrounding corpuscle. As they contract and become thicker they again become visible. In such cases the appearance of amœboid movements will settle the question. Some care is necessary in collecting the blood. The cover-slip should be clean, a very small amount of blood be placed on it, and applied immediately to the slide. When the amount of blood taken is so large that the corpuscles lie over each other, or when they are in rouleaux, it will be impossible to see the bodies. They are much more readily seen in stained preparations. These are made by drying a thin film of blood on the cover-slip, taking care to have not more than a single layer of corpuscles, heating the cover, and staining with some one of the aniline colors, for which purpose fuchsin or methylene-blue will give the best results. At this early stage of the disease, the bodies are not found in the period of apyrexia, and appear to be most numerous at the height of the algid stage.

After the patient has had several chills, the bodies are found also in the interval, but in greatly less numbers than in the paroxysm. They are much more easily seen, and present numerous differences from those just described. The small non-pigmented forms are found, but, in addition, larger ones, which almost or entirely fill up the body of the red corpuscle. These larger forms are always pigmented, the pigment generally taking the form of minute black rods. It may be irregularly distributed through the body, or collected in a mass at one side. The corpuscles containing these large bodies are generally slightly swollen and very pale, at times apparently entirely wanting in color. The pigment renders the detection of these bodies a matter of comparative ease. In using the Abbe illuminator, the diaphragm may be thrown out entirely, and only the pigment sought for, and, when this is found, the character of the body containing it may be ascertained by replacing the diaphragm (Fig. 1). The pigment granules often exhibit the

FIG. 1.



The lower row represents the pigmented plasmodia when looked at without the diaphragm. The upper line with the diaphragm in place. $\frac{1}{20}$ homogeneous immersion.

most marked Brownian movement. The amœboid movement can be readily followed even without the use of the diaphragm, by observing the relative position of the pigment masses. In addition to these bodies, several times bodies resembling the larger forms of the body No. 2, of Lavaran, were found.

Only two cases of well-marked remittent fever came under observation. In both of these, and in all the cases of malarial cachexia, bodies were found which differed from those just described. In preparations of the blood, taken at any time, long bodies usually curved in the form of a crescent, were found. These bodies are highly refractive, homogeneous, with sharp outlines, and always contain pigment. This is usually collected in a bunch in the middle of the body. In a few of the bodies the mass of pigment was in the centre, and from this long lines radiated toward the extremities. Most of the forms are slightly curved in the form of a crescent; they are from one and a half to three times as long as the diameter of a red corpuscle, and not wider than the half of this diameter. Though they are narrower at the ends than in the middle, the ends are not pointed but slightly rounded. While this is their general character, they present considerable irregularity, some being nearly round, others elongated and straight. It was in the oval ones that the radiating arrangement of the pigment was most frequently found. They are free in the blood and have no power of motion; they are most generally found in the midst of clumps of red corpuscles. In several cases a faint, delicate line, curved the other way, was seen connecting the ends of the crescents. Marchiafava and Celli also describe these crescentic forms, and suppose them to be developed from the plasmodia. (Fig. 2.)

FIG. 2.

Various forms of crescents. $\frac{1}{20}$ homogeneous immersion.

In two cases the crescents were found in the blood at the same time that the red corpuscles contained plasmodia. These were two cases which had come into the hospital with intermittent fever, which ceased under the influence of good food and a placebo mixture composed principally of tincture of gentian. There were abundant plasmodia in the blood during the entire period that the chills lasted; they became fewer with the appearance of the crescents, and three days after the last chill they had disappeared entirely, but the crescents remained as long as the patient was under observation.

All the cases of malarial cachexia were persons who had lived in a malarial country, coming principally from the packing-houses of Hartford County, and from the large peach farms in the lower counties. Most of them had suffered from repeated attacks of intermittent fever, and presented all the appearances of malarial cachexia, anæmia, enlarged spleen, slight icterus, etc. Although most of these

cases were kept from quinine while under observation, none of them developed acute forms of malarial fever. The number of crescents varied much in the different cases. In one case of remittent fever with comparatively high temperature, splenic tumor, and slight icterus, they were so numerous that, often twelve to twenty could be counted in a single field of the homogeneous immersion. In the other case of remittent fever they were not so numerous. In the cases of malarial cachexia they were not so numerous as in the cases of remittent fever. It could not be said that the number of them bore any exact relation to the severity of symptoms. One of these cases in which they were well marked left the hospital in a state of comparative vigor after a long course of iron and tonics, and on my last examination, made the day he left, they were found in considerable numbers. In one case, with large spleen, marked anæmia, general malnutrition with œdema of lower extremities, they were present in extremely small numbers. Their numbers did not vary much from day to day. These bodies seem to be peculiar to forms of malaria other than intermittent fever. In not one case of tertian or quotidian fever were they found. They were found in cases where the chills had stopped under slight tonic treatment and better diet. In most cases where they were found, they continued during the entire stay of the patient in the hospital. In one case they seemed progressively to become fewer in number, and when the patient left the hospital but a single one could be found in the examination.

Four cases of the pernicious comatose form of malarial fever were investigated. This is a form of fever which is rather rare in and around Baltimore, and still more rarely recognized. Seven cases of it have come to the autopsy table at Bay View in the last two and a half years. Five of these were brought to the institution in a state of coma, two developed in the house. All of the cases had about the same symptoms: a sudden attack, coma which became gradually deeper, and fever rarely going above 102°. In most of these cases there was albuminuria.

Of the four cases seen this fall, three were fatal. In one case the blood was examined on the admission of the patient, and the diagnosis made. He was given at once sixty minims of the solution of quinine and urea, and after a few hours fifty minims of the same solution. On the following morning his condition had much improved, and after large doses of quinine for ten days, he was able to leave the hospital. In one of the fatal cases the blood was examined before death, and the diagnosis made, but in spite of the vigorous use of quinine hypodermatically he died. The patient, however, had been comatose for forty hours before the examination of the blood was made. In another case the examination was made directly after death and the condition diagnosticated.

In all of these cases the crescentic bodies were found in great numbers, along with other bodies which were seemingly identical with the hyaline bodies found in the capillaries after death. In the case which recovered there was some diminution in the number of crescents from day to day, but the small round pigmented bodies disappeared entirely. The characteristic lesions were found after death. The cortex of the brain was a dark chocolate color, the liver and spleen much enlarged and deeply pigmented. Microscopically the characteristic hyaline bodies were found in immense numbers in the internal organs, particularly in the brain and spleen.[1]

Often an appearance similar to segmentation was seen. Instead of the single hyaline body with the pigmented centre, it seemed to be split up into a number of much smaller bodies, four to eight small stained bodies were found together, all apparently enclosed in a capsule. One case differed from the others in the small amount of pigment which was found in the hyaline bodies. In all the cases a few non-pigmented forms could be found, but in this they were nearly all unpigmented. When very thin sections of the spleen, made by embedding portions of the organ, were examined, the numbers of these bodies found almost exceeded belief. The tissue was literally packed with them, and in numbers they could only be compared with the bacilli found in the same organ in cases of anthrax. Although numerous crescents were found in the blood examined during life, none were found in the organs after death. In the blood examined during the autopsy only the hyaline bodies and some imperfect forms of crescents were found.

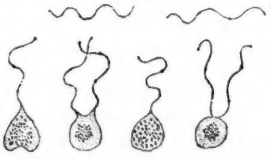
Though the bodies here described leave little doubt in the mind of the observer that they are foreign to the organism, and could not have arisen in consequence of any transformation of protoplasm, there can be no doubt as to the character of the ciliated bodies. These with the crescents were the most frequent forms seen by Lavaran. They were also seen by Marchiafava and Celli in four of the cases examined by them. These ciliated bodies are from one-third up to one-half the diameter of a red blood-corpuscle. They always contain pigment, have sharp outlines, and about the same refraction as the crescentic organisms. The pigment is either arranged in a circle or distributed through the mass. In the latter case it shows the most active Brownian movement. The cilia vary in number; usually there are but two, but in some cases as many as four were found. They appeared always to be arranged on one side of the body. Their length is three or four times that of the body to which they were attached. They are thin, delicate filaments with slight nodular swellings at intervals, and they most always terminated in a small node. They are best seen when moving slowly. When their motion is rapid only a glimpse can be caught of one now and then, as it comes across the focus of the microscope; and when they are not in motion they can be seen only with the greatest care in focussing.

Several times in the same preparation with the ciliated bodies free cilia were seen. These appeared to be the same size as those attached to the bodies, and like these had small nodes along them. They moved rapidly through the blood, sometimes with a spiral motion, at others with a lashing motion similar to that of a spermatozoon. (Fig. 3.) In their on-

[1] American Journal of the Medical Sciences, April, 1885.

ward motion they often came in contact with a red blood-corpuscle and would violently indent this, or they would agitate a whole group of corpuscles. The motion of the cilia, both when attached and

FIG. 3.



Ciliated bodies and free cilia. $\frac{1}{20}$ homogeneous immersion.

when free seemed to have a certain rhythm: they would move slowly at first, the motion increasing until it became very rapid; then it would become slower and nearly cease, again to become very rapid. In addition to the motion of the filaments, a wave-like motion of the periphery of the body was often seen.

The description of the ciliated bodies given by Lavaran agrees with what I have observed, but he figures them as somewhat larger than they actually are. They were found in eleven of the seventy-six cases, and in every form of the disease. In one of the cases of comatose fever examined before death they were seen, but not in any of the examinations made after death. In addition to this case they were found in one case of remittent fever, in five cases of typical intermittent, and in four cases of malarial cachexia along with the crescents. Their presence was not constant. Sometimes they were seen but once in a case in the course of ten or twelve observations, in other cases they were seen three or four times. Several times small hyaline masses about as large as one of the larger forms of micrococci were found attached to them.

Most of the cases were seen during a residence of two weeks in the institution, and some rather interesting results as to the action of drugs on these bodies were obtained. In order to study the cases as thoroughly as possible, most of those coming in with simple intermittent fever were placed under placebo treatment, good diet, and rest. Under this the chills in some cases diminished in frequency and severity, and in a few instances ceased entirely. Others grew worse, the chills antedating and gradually changing from a tertian to a quotidian type. In several cases the plasmodia disappeared from the blood and crescents appeared. In all the cases of intermittent fever a few large doses of quinine sufficed to stop the chills and cause the plasmodia to disappear from the corpuscles. The quinine was given in doses of ten grains t. d. for several days in succession, after which the patients were given smaller doses or placed on house tonic. Similar treatment in cases in which the crescents were present seemed to have absolutely no effect on them. They would be present in just as great numbers after thirty grains of quinine had been given daily for three days as before any quinine at all was given. Knowing the effect of Warburg's tincture on cases of chronic malaria, this was given in two cases in one-half ounce doses t. d. for several days in succession, but with no more effect on the bodies than the quinine had had. The patients improved, appetite and color became better, but the bodies remained, although, as said, their number in some cases was diminished.

I am able to say little as to the effect of medication on the ciliated bodies. In some cases they were not seen after quinine, but often they were seen but once in the course of many examinations, so that little can be learned from this. In one case they appeared after numerous doses of quinine had been administered. In one case Dr. Atkinson was kind enough to draw some blood from the spleen in an interval of the attack, in a case of intermittent. In the splenic blood the plasmodia were found in considerable numbers, but they were not present in the blood drawn from the finger on the same day. In every examination special attention was directed to pigmentation of the white corpuscles. Pigmented white corpuscles were found in comparatively few of the cases, and only in the severer forms. They were most numerous in the case of a negro, with comatose fever, and were found in abundance in the three other cases. In these the pigment was in the shape of large, round and irregular masses. It was not found in any of the recent cases of intermittent fever, and only occasionally in cases of remittent fever and malarial cachexia. In these cases it was mostly in the form of fine rods.

Changes were seen in the red corpuscles in numerous instances. The most common change was the appearance of vacuolation spoken of. This is important as liable to lead to error, and seems most probably what Richard has described as the first appearance of the parasite in the corpuscle. This he describes as a small, clear spot appearing in the corpuscle, somewhat as a weevil appears in a pea. In the cases where the anæmia was marked there was a diminution in the number of red corpuscles, and considerable variation in size and shape.

Some attention was directed to the blood plates. In our observations last spring it appeared in some cases that these were pigmented, but I was unable to confirm this in the cases examined this fall. Sometimes their numbers appeared to be increased, but this varied so much in specimens of healthy blood examined, that I could not reach any definite conclusion. The white corpuscles containing the pigment, and others which did not contain it, were in many cases enormously swollen. None of the white corpuscles contained the plasmodia, but in one or two instances the movable bodies seemed to be enclosed in them.

Numerous control experiments were made, the most convincing of which were unintentional. Cases of marked anæmia from various causes other than malaria were examined, cases of typhoid fever, and of fever from various causes: but all with negative results. In several instances individuals from a malarial region with almost every outward manifestation of malaria, slight jaundice, etc., were examined, supposing as a matter of course that they were malarial, and negative results obtained. One of these individuals not only had the outward ap-

pearance, but so typical a remittent fever temperature curve that it required considerable resolution to stand by the microscopic diagnosis. The further course of the disease justified the confidence.

As the matter stands now so much is certain (1st) that in malarial fevers and cachexia there are certain bodies found in the blood, whose presence makes the diagnosis of the disease certain. 2d. The character of these bodies varies in different forms of the disease. Although they seem in rare cases to run into each other, still, in general, we can say that where the plasmodia inside the red blood-corpuscles are seen the patient has intermittent fever, and where the crescentic and elongated masses are found he has either some form of remittent fever or malarial cachexia. The ciliated bodies, though diagnostic of the disease, do not afford any indication of the character of the fever. What is the nature of these bodies? That they are organisms, whether vegetable or animal, we cannot doubt.

One thing that is hard to reconcile to the view of their viability is their protean shape. Nothing could look more unlike one of the small unpigmented amœboid bodies inside the red blood-corpuscles than the large crescent with its bunch of pigment in the centre, and the ciliated body is wonderfully unlike both.

It seems probable that the crescentic form of this organism is more tenacious of life, has a greater power of resistance than the other forms. And this form appears in just those cases of malaria where quinine proves most inefficacious. It is possible also that this form may represent the adult organism from which the other forms may be produced, and quinine, while not acting destructively on the adult form, may prove destructive to spores or younger forms evolved from this. It is also possible to assume that the good effect of quinine in this condition may make itself felt by raising the powers of resistance of the tissue cells, particularly the red blood-corpuscles, enabling them to resist successfully the attack of the organism.

The various steps in the evolution of the organism have not been made out. Lavaran says that the free-moving cilium is the true organism, and that it attacks the corpuscles, while Marchiafava and Celli claim that the active agent is the amœboid organism. It is possible that there may be an earlier form than either of these. Marchiafava and Celli have described small, isolated masses in the interior of red corpuscles which are not larger than micrococci, and stain brilliantly with methylene-blue. I have seen similar bodies in numerous cases of intermittent fever, sometimes in considerable numbers, at others very few. They were never found in other cases than intermittent. Often club-shaped processes of the plasmodium will be found connected with the central mass by very fine filaments, and these may be mistaken for the small, round masses. It is possible, when the corpuscle contains numbers of these, that the whole may be connected by slender threads which elude observation, or the plasmodium itself may break up into these small masses. That there is some connection between them and the plasmodium is shown by the fact that they are always present together. It is also possible that they may represent the earliest form of the organism, and the plasmodia may develop from them.

Nothing definite is known as to the actual connection of all these various forms of the organism with each other. Until it can be isolated from the body and grown in suitable media outside of it, there can be nothing but mere speculation concerning this connection. All attempts to cultivate it outside of the body have failed. The organism is not a bacterium, and most probably cannot be cultivated in the same manner that bacteria are cultivated. Its whole morphology declares it rather to belong to the protozoa, and with every means at their command zoölogists have never succeeded in cultivating these as bacteria are cultivated, and as common as the protozoa are, the complete life history of few or no examples of the group has been made out.

The importance of these recent discoveries in malaria can hardly be overestimated. Not only is a new territory opened to the pathologist, but to the clinician the sure means is given, by a simple examination of the blood, of diagnosticating accurately the most complex, and sometimes most terrible, of diseases, and in which more depends on a speedy and certain diagnosis than in any other disease. Not only is he enabled to diagnosticate the disease as such, but in most cases the particular form.

PRIAPISM: ITS CAUSES AND TREATMENT, INCLUDING THE HISTORY OF A REMARKABLE CASE.

BY J. L. DAWSON, JR., M.D.,
OF CHARLESTON, S. C.

PERSISTENT erection of the penis is a trouble so rarely met with that our literature on the subject is very meagre. The journals, from time to time, report cases, from which most of our information is collated, and from which we must deduce most of our conclusions.

There seem to be three classes of causes: first, those due to traumatism, producing inflammation and lymph extravasation; secondly, those directly due to diseases of the nervous system; and thirdly, those due to nervous excitations of a reflex character.

Cases of injury to the penis during the act of copulation, and subsequent persistent erection of the organ, are often met with, and as frequently reported. Cases dependent upon diseases of the nervous system are exemplified in the persistent erections attending locomotor ataxia. Disease and injuries of the cerebellum and spinal cord are known to produce erections of a severe nature. I have seen sudden erections occur at birth in cases of breech delivery, as the head engaged in the superior pelvic strait, due, possibly, to pressure upon the cerebellum by the movable cranial bones. Again, local irritants, such as foreign bodies in the rectum, irritation of the prostate, and adherent prepuce, produce erections through the reflex nervous centres.

"Mr. Bryant[1] circumcised a boy, aged two years, who was suffering from an erection of the penis which his mother declared positively had existed from birth. He could pass his water freely, but the prepuce was long and adherent to the glans. When eleven months old he had tetanic fits, followed by wasting of his legs. The operation removed all symptoms." Some authors believe that effusion of blood into the corpora cavernosa may be caused by impeded return of the blood in persons suffering from leukæmia, in a way analogous to the hemorrhage from mucous membranes that occurs in that disease. "Dr. Salzer,[2] of Worms, narrates a case of priapism in a man aged forty-six, who awoke with his penis in a state of violent erection, which even the administration of chloroform did not allay. He considers this condition to be one of the symptoms, but a rare one, of leukæmia. The spleen was enlarged from attacks of ague."

On Sunday, August 28, 1886, I was called to see J. J., suffering from priapism. The patient was a healthy negro of about thirty-five years of age, a fisherman by occupation, and the father of several healthy children. He gave the following history: The previous week, from Monday night until Saturday morning, he had been shrimping, spending his nights in an open boat, and using a cast-net. On Saturday morning he reached the wharf at 5 o'clock, and, being very tired, he laid down in the open air and slept for an hour. He then went home and rested part of the day, but went out again in the evening. On retiring, at 11 P.M., he had connection with his wife. The act was not satisfactory. As he describes it, his emission was slight and rapid. He attributed this to exhaustion, and immediately went to sleep. He awoke at seven the next morning, with an erection more forcible than that caused by a distended bladder, to which he was accustomed. He got up and urinated without trouble, but his penis did not become flaccid. He returned to bed and again had connection with his wife. The act, he declares, was perfectly performed without uneasiness, but after ejaculation the organ remained in a state of erection, and began to pain him along the urethra in the perineum. He applied cold water and took a cold bath, but these having no effect, he wrapped the organ in crushed ice.

Still suffering, he summoned me to his aid, and when I saw him, at 12 M., the penis was firm, erect, and hot. The corpora cavernosa seemed to be the portions most involved in this turgescence, for the corpus spongiosum and glans were softer, and the prepuce could be readily drawn forward so as to cover the glans. I ordered hot fomentations to be applied, but they availed nothing. I again tried the ice bag, and ordered fifteen grains of potassium bromide every hour. This was continued during the day, but at my evening visit I found the organ in the same condition, the pain unabated. He slept at short intervals during the night, but was frequently awakened by pain, which was of a sharp, paroxysmal character, intensified by entanglement of the erect organ in the bedclothes. The day following he was put upon fifteen grains of chloral hydrate and thirty of potassium bromide every hour until six doses were taken. This giving no relief, in the afternoon I injected half a drachm of a four per cent. solution of muriate of cocaine into the urethra. After waiting a reasonable time, electricity was tried. The interrupted current was used, one pole being applied to the lumbar region, the other to the perineum. The poles were shifted from time to time, and the current sent directly through the organ, but it produced no relaxation whatsoever. I wished to try the continuous current, but could not obtain a battery at the time. A brisk cathartic was administered, and the following suppositories introduced into the urethra during the night: extract belladonnæ, grs. iij, extract opii grs. iij, ol. theobrom. q. s.; ft. in suppos. no. iii. The following morning the patient was suffering greatly, and had slept little. A half grain of sulphate of morphia was given hypodermatically, which had the effect of producing profound narcosis, but the organ persistently refused to become flaccid.

In the evening of this, the third day, as the man was still suffering, I determined to open the corpora cavernosa, and evacuate the blood, fearing that gangrene might ensue. With the assistance of Dr. P. G. de Saussure and Dr. J. J. Edwards, chloroform was administered and pushed to its utmost limit. The cavernous body of the right side was incised at the pubes, and a quantity of dark grumous blood evacuated. Although we extracted as much as we thought advisable, it had very little effect on the erect organ.

Having failed in every expedient, we determined to continue the bromides and watch the case. During the priapism there was no difficulty in the passage of the urine, the patient emptying his bladder easily. The erection continued for ten days, and nothing further was done beyond the application of tobacco poultices and the administration of stimulating enemata, which seemed to have little effect. The turgescence began to subside on the tenth day, and in four or five days the penis had gradually returned to its normal flaccidity.

Nearly two months have elapsed: the patient enjoys his usual degree of health, and has returned to his work, but he is unable to have an erection. He has attempted the act of copulation several times, but the penis remains flaccid, although he asserts that he has an orgasm with ejaculation.

Leukæmia may have been the cause in this case, as I had attended the patient with malarial fever some months previously; he was necessarily exposed to malarial miasm, spending his nights among the marshes along the coast. I had never examined his spleen physically, and did not take this disease into consideration during my attendance on the case.

Our treatment in these cases must be guided by the cause. Where the priapism supervenes upon injury, and is due to inflammatory deposits, antiphlogistics are, of course, indicated. When supervening upon nervous troubles directly, or by reflex stimulation, we must use sedatives, and the bromides are supposed to meet this indication most promptly. Opium and its alkaloids are also of great value.

[1] International Encyclopædia of Surgery, vol. vi. p. 660.
[2] Op. cit., vol. vi. p. 661.

Locally, hot fomentations, ice, anodyne applications, anodyne enemata and suppositories have all been more or less beneficial. The overloaded cavernous bodies may be opened and the blood evacuated when everything else has failed; but this should be a last resort, as the injury to the part is intensified, and inflammation, however slight, will only bring an increased supply of blood to the organ. If we believe the priapism to be a symptom of leukæmia, then large doses of quinine in combination with iron should be of benefit.

The disease seems to run its course occasionally in spite of everything we can do. Its tendency is to recovery, but it may threaten mortification. Hunter says he once saw a case of this kind in a dog, in which the erection refused to subside, and the penis mortified and dropped off. There is one case on record of injury to the penis during sexual intercourse, in which death ensued two weeks after the commencement of the priapism, but to what the immediate cause of death was attributed is not stated.

REPORT OF CASES ILLUSTRATING THE GREAT CONTAGIOUSNESS OF SCARLET FEVER.

BY BOARDMAN REED, M.D.,

OF ATLANTIC CITY, N. J., FORMERLY PHYSICIAN TO THE MERCER MEMORIAL HOUSE FOR INVALID WOMEN.

THE science of medicine is not yet completed, and it is the bounden duty of every physician to report cases which may assist in the determination of mooted questions. The paper read by Dr. Arthur V. Meigs, on "The Contagiousness of Scarlet Fever," at a recent meeting of the Philadelphia County Medical Society, raised a question of the utmost practical importance. It was an able and elaborate presentation of views which have long been held by some experienced physicians—views which from time to time have been set forth with more or less cogency in medical literature.

Dr. Meigs contends that scarlet fever is by no means so contagious "as is commonly reported, and very much less so than measles and whooping-cough, and some of the other common contagious maladies." The ten cases cited by him certainly show that the contagium of scarlet fever is less volatile than that of measles and whooping-cough, and less likely to pervade an entire house. In one of his cases, moreover, there was an exposure of two children to the disease for some hours after the rash appeared, without its being taken. I have seen similar cases where one child in a family having been taken with scarlet fever, the other children, who had been with the sick one till shortly after the rash appeared, were isolated and kept in another part of the house till a month or more after convalescence was established, and then allowed to associate again with the convalescent without contracting the disease. In these cases, however, the greatest pains were taken to destroy or thoroughly disinfect every article of every description which had been in the sick-room. The convalescent children were bathed, their heads shampooed, and they themselves taken daily out into the air for a week before being permitted to mingle again with the other children. Without these extraordinary precautions my experience teaches that even a month's separation is no guarantee against the contagion.

Most of the authorities on the diseases of children refer particularly to the lack of volatility of the scarlet fever poison. It is an established fact that it is usually necessary to be quite near a case of the disease in order to contract it. It is getting to be pretty well settled, also, that scarlet fever is less contagious previous to the coming out of the rash than afterward. Probably the same is true of most of the eruptive fevers.

Granting all this, and granting, also, that adults rarely take scarlet fever, while the older children of a family sometimes—though certainly very exceptionally—escape after complete exposure during the height or decline of an attack, I must still insist on considering this one of the most contagious, as well as the most treacherous and dangerous of the exanthemata. What its contagious principle lacks in volatility it makes up in persistency and indestructibility. It has been known to remain for years in articles of clothing without losing its virulence. Even the comparative insusceptibility of the middle period of life is not a sure protection against it, provided the exposure is frequent or long continued.

The following case strikingly illustrates the certain contagiousness of scarlet fever when neither isolation nor other preventive measures are practised.

CASE I.—In the summer of 1879, a few cases of scarlatina occurred in one of the public schools of Atlantic City. In a poor family, consisting of father, mother, and six children, the oldest, a girl of ten years, contracted the disease. She was put to bed in the upper room of a two-roomed dwelling in which the entire family slept. One after another, at intervals of two to five days, all the children were attacked. Finally the mother, who had nursed them night and day, contracted the fever. The father, who had previously been out at work during the day, though sleeping in the one bedroom with the sick ones at night, escaped till the last; but having then to take the mother's place as nurse, and hold one or other of the sick children on his lap, he could not longer resist the concentrated contagion at such close quarters, and himself came down with the disease. None of the cases was malignant, and all recovered.

The following is one of several cases closely resembling each other, which have occurred in my practice.

CASE II.—One of a family of two children had scarlet fever in Philadelphia. The other child was kept away until an entire month after convalescence was established. Then both children were brought to a boarding-house in Atlantic City, and allowed to occupy the same room. Within a few days the other child was attacked, when, as is the custom here, the entire party was obliged to remove at once to a private cottage. The greatest care was used in disinfection, and the disease did not spread any further.

Owing to the regulation enforced by all hotel proprietors at this resort, that guests who develop any contagious disease must be immediately removed, I have never, except in the following instances, known

any such diseases to be contracted from other cases in a hotel here. Whooping cough cases are sometimes permitted to remain in the smaller boarding-houses, but never in the hotels or more important hostelries. It is significant as to the contagiousness of scarlet fever that these only exceptions (described below) were of that disease.

CASE III.—A child brought from a neighboring city to a hotel here developed a severe and typical attack of scarlet fever on the night of its arrival. I saw it the next morning, and advised that it be immediately quarantined in a cottage. Instead, the family took it home, where it died the next day. The room occupied by it was disinfected, but perhaps not with sufficient thoroughness. Some two weeks later a child arrived from another city, and by accident was assigned to the same room. Within twenty-four hours it was seized with high fever, rapid pulse, vomiting, and acute inflammation of the fauces. No rash had yet appeared when my visit was made; but, anticipating scarlet fever, I again advised removal to a cottage. The parents, against my protest, returned home with the child. A diagnosis of diphtheria was there made, and death resulted in two or three days. There had been no diphtheria in the house, and, considering the circumstances, it seems to me at least probable that this was a case of scarlatina without rash. The room was now thoroughly disinfected, and no other children were permitted to occupy it for several months. About the same time a family with two children were occupying a room on the same floor, and nearly opposite the one just referred to. Within a week after the last case mentioned, one of these children was attacked with scarlet fever, and the family then promptly removed to a cottage. The child did well, recovering in due time. The other child occupied a different room after the transfer, but by the end of a week was taken with slight fever, and sore throat, evidently scarlatinous, but had no rash. There had been no other cases in the hotel, and, though this was several years ago, there have not been, to my knowledge, any cases in it since, either of diphtheria or of scarlet fever.

In view of the above facts, I submit that physicians cannot be too careful in guarding against the spread of scarlet fever. On account of its frequently malignant and deadly character, as well as the serious complications and sequelæ which so often afflict children that do not die of it outright, it is certainly to be dreaded more than any other disease of childhood. Therefore, admitting that it is somewhat less contagious upon slight exposure, or at a distance, than some other diseases, let us nevertheless inculcate greater rather than less stringency in quarantining against it.

A CASE OF POST-PUERPERAL HYPERPYREXIA, WITH A TEMPERATURE OF 109.4°; TREATED BY COOL SALT-WATER BATHS; RECOVERY.

BY W. W. SKINNER, M.D.,
OF BERLIN.

EVER since the introduction of the clinical use of the thermometer, the question of the extreme limit of bodily temperature compatible with life has attracted attention. Liebermeister has made many researches upon the lower animals, mammifers and birds, and it appears that these animals infallibly die when their temperature has reached a point 10° or 12° F. higher than their normal. He remarks, in accordance with Bærensprung, that the maximum of bodily heat observed in human beings who have recovered is 108.5° F., and believes that the absence of a higher temperature demonstrates the impossibility of the preservation of life beyond that term. Another investigator, Weikart, declares that at 109° F., blood decomposes and coagulates. Wunderlich also believed that a temperature exceeding 108° F., necessarily caused death. Nevertheless, it seems that there are rare exceptions, under certain conditions, to this general rule. For instance, Hirtz[1] affirms that in the clinique at Strasburg a temperature of 111.2° F. was observed at the culminating point of an access of simple tertiary fever of a benign character. But he does not definitely state by direct assertion that the patient ultimately recovered.

It has recently fallen to my lot to observe a case of extreme hyperpyrexia which developed under special conditions. The following are the principal facts relating to it, which were gathered with the utmost care and exactness.

Mrs. H., passenger on the steamship "Marseille," sailing from Antwerp to New Orleans, gave birth, on August 24th, to her first child, which was well developed and born at the termination of the normal term of gestation. The confinement was natural, but the posterior wall of the vagina was slightly torn in its lower portion during the passage of the cephalic extremity of the fœtus. The delivery was slow, lasting more than an hour, and it is probable that a small portion of the aminos was left in the uterine cavity after the placenta was extracted. There was very little hemorrhage, but during the succeeding days a fetid sanious discharge escaped from the vulva in considerable quantity. During the first four days after the *accouchement* there was complete absence of fever, and of every subjective morbid symptom. The parturient occupied a bed in the hospital of the ship, where the sanitary conditions were deplorable. No ventilation worthy of the name, an insupportable, stifling heat, and cleanness and especially asepsis more than problematic; such were some of the conditions in which the *accouchée* was placed.

Until the 28th of August, the temperature of the parturient had not exceeded the normal. Even on the morning of that day it was still 100°, but at evening it had risen to 102.2°. This was the fourth day after confinement. The general condition of the patient was satisfactory. Owing to abundant perspiration, the entire surface of her body and limbs was covered with abundant sudamina.

August 29.—Fifth day; morning temperature taken in the rectum, 104°. The vaginal discharge still abundant and fetid, notwithstanding injections of carbolized water into the uterine cavity twice daily. At 4 P.M. I found her with the extraordinary rectal

[1] Dictionaire de méd. et de Chir. pratiques: Art. Chaleur.

temperature of 109.4° F. Surprised by such a high point and desirous of removing all doubt of its precision, I took the temperature a second time with the same result; I also took the axillary temperature, which was 109 2°. In view of the urgent necessity of reducing the central temperature of the patient without delay, I at once instituted the antipyretic treatment *par excellence*, the employment of cool or cold water. At first, lotions with sea water at 82° F. were administered over the entire surface of the body during an hour. This brought the rectal temperature to 107.6°. Then the patient was placed in a bath of sea water also at 82°, and remained there during another hour. After the first half hour the rectal temperature fell to 102.2°, and at the termination of the bath it was at 100.4°. The pulse, before the bath, was 154, afterward 120. A cathartic (an ounce of magnesia sulph.) had been administered as soon as her high temperature was discovered, and after the bath she was given a few grains of sulph. quinine. This was all the treatment employed to combat the fever, except that she was not returned to the hospital, where the heat was very great, but was placed in a stateroom on deck.

During the whole of the fever, the patient preserved the entire use of her mental faculties and a large proportion of her strength. No morbid phenomena, general or local, presented themselves, other than those already mentioned.

30th.—Great improvement in the patient. Continuation of the sulph. of quinine in doses of ten grains twice daily. Rectal temperature: A.M. 101.3°, P.M. 102.2°. Late in the afternoon, another bath with sea water at 84° caused the rectal temperature to fall to 100.4°.

During the following days the fever gradually diminished up to the arrival of the steamer at New Orleans, when the patient was transferred to Charity Hospital. She remained there nearly three weeks without presenting any new symptoms, and left the hospital September 23d after complete recovery.

It is interesting to observe that upon the same day that the patient showed her maximum temperature, the heat of the atmosphere in the hospital where she was lying was very great, being, by careful observation, *not less than* 91.4°. This was the degree of heat in that part of the ship during several successive days at this period, and I am inclined to think that this excessive heat of the *milien ambiant* had much to do with the intensity of the fever in the case in point. This would explain, to a certain extent, the ease with which the patient's temperature was lowered, and the improvement which immediately succeeded her removal to another room where the heat was less.

One might object to the report of this case by remarking that the thermometer employed in this instance might not be exact; in other terms, that there might have been an instrumental or thermometrical error. I would respond to this objection by the statement that the thermometer employed in this case is the same that I used for three years in the Paris hospitals, but in order to remove all doubt as to its present precision, I had it tested, after the voyage, in the laboratory of General Pathology of the Faculty of Medicine of Paris, and it was found to be exact.

The ultimate recovery of fever cases having had a central temperature of 109.4° is extremely rare. It is on this account that this observation is worthy of publication.

RECOVERY FROM AN OVERDOSE OF MERCURIC CHLORIDE.

BY S. T. ARMSTRONG, M.D.,
PASSED ASSISTANT SURGEON U. S. MARINE HOSPITAL SERVICE.

THE following case seems worthy of record as an instance of recovery consequent upon an extremely large dose of mercuric chloride:

John McDonald, aged thirty-five years, was employed temporarily as a hospital orderly, though by occupation a sailor, and endowed with the virtues and vices common to men of that pursuit. Principal among the latter characteristics was an overpowering affection for alcohol—in any form. Once, while in the navy, he drank a tin-cup full of an alcoholic solution of shellac, and without any subsequent physical penalty, save great temporary discomfort.

On November 1, 1886, during the temporary absence of the physician and steward, the subject of this history, for some time deprived of any opportunity for alcoholic indulgence, and having no wherewithal to obtain liquor, entered the hospital pharmacy, and finding the dispensary bottle of alcohol, containing spirits 95 per cent. proof, took a drink of about thirty cubic centimetres of the liquor.

The result was so satisfactory to him that, in a short time, he repeated the potion. On attempting a third potation, he took from the drug shelf a bottle, of similar size and adjoining the alcohol bottle, containing a solution of mercuric chloride, 100 grammes in 500 grammes of alcohol, used for quickly preparing ward solutions of bichloride of mercury. He poured out, he judged, the same quantity of the liquor as before—a quantity that contained six grammes (ninety grains) of mercuric chloride—and drank it at a gulp. As soon as it passed his throat, he knew from the burning sensation, that he had taken something wrong.

Almost instantly violent cramping and vomiting occurred, soon augmented by free purging and micturition. The hospital steward returning within an hour after the poison was swallowed, found the man coiled up on the grass, and learning from him that he had taken something from the medicine case, gave him, on general principles, a dose of sweet oil. I saw the man shortly afterward. His face was pale, eyes sunken, expression anxious, voice stridulous—he spoke with difficulty; heart's action feeble and rapid, skin cold. Insatiable thirst, and continued vomiting of the few drops of water he momentarily swallowed. Tormina and tenesmus, with occasional evacautions of a small quantity of intestinal mucus. Copious micturition.

To counteract the collapse a hypodermatic injection of atropia sulphate 0.002 gramme was given, and the patient put to bed.

An inspection of the pharmacy was made, and a graduate found containing a white deposit on its

side; an examination soon showed this to be mercuric chloride, and a glance at the medicine shelf explained the source of his potations. In consideration of the potency of the poison, and the condition of the patient, the case was prejudged hopeless. Reaction, however, followed the hypodermatic, he became stronger during the night, and though very weak the next morning, gave promise of recovery. The subsequent history of the case is unimportant; intense salivation occurred, which was treated as usual, and the case discharged, recovered, on November 11th.

It is considered that the alcohol (60 c. c.) first drank had dehydrated the mucous membrane of the œsophagus and stomach, rendering absorption slow, and the excessive dose of the bichloride proved so irritating that he vomited most of it.

MEDICAL PROGRESS.

THALLIN IN TYPHOID FEVER.—The introduction of such drugs as "kairin," "antipyrin," and "antifebrin" has somewhat diverted attention from a very powerful antipyretic agent, viz., thallin. PROF. EHRLICH lately presented to the Clinical Society of Berlin the results of some researches he has been making with this last-named agent, especially in the treatment of typhoid fever (*Münch Med. Woch.*, No. 47). From experiment, he had found that after administering the drug to animals it was not retained in the nerve centres, but mostly in the fatty tissue of the body. He also found that there was a marked difference in toxic action, according as to whether it was administered by the mouth or subcutaneously, the greater inertness of its effect in the former case being attributable to the hindrance to absorption from the presence of intestinal contents. The lesions induced by a toxic dose comprised fatty degeneration of the kidneys, necrosis of the salivary glands and pancreas, and hemorrhagic infarcts in the renal pyramids. The chief action of thallin is antipyretic, but it is capable, also, of moderating inflammation. As regards typhoid fever, it was administered by Ehrlich in two different ways. The first plan consisted in commencing with doses of 0.06 gramme every hour, and reducing the dose to the minimum required to give any effect. The other plan was to commence with a minimum dose, and increase it until an effect was produced, and then to continue the prescription at the dose thus attained. The action of thallin is especially noticeable in its effects on the sensorium and general condition of the patient, who presents the appearance of convalescence, whilst the splenic swelling and roseola are still present; and if the drug be discontinued the temperature will rise again. It is not therefore surprising to learn that, whereas of twenty-eight cases treated by bathing, the average stay in hospital was thirty-seven days; of seven cases treated by thallin (minimum doses), the duration of treatment was forty-seven days; and cases on a scale of progressive doses, thirty-eight days. However, Professor Ehrlich claims advantages for the drug in the absolute control it exerts over the pyrexia, and the sense of well-being enjoyed by the patient. There were no intestinal hemorrhages in these cases, and no instance of perforation. The kidneys were not affected, but sequelæ in the form of hyperamia and œdematous swellings seemed due to the use of the drug. It was not thought that thallin had any specific action against the typhoid bacillus, but it did seem to limit the degree of intestinal ulceration. Professor Ehrlich considers it to be on a level with the bath treatment. DR. FRANKEL pointed out that if the statement were correct that thallin is not found in the nerve centres, its action in reducing temperature was rather inexplicable. He had exhibited it in increasing doses, but could not say that the patients experienced any special benefit attributable to the diminished fever. DR. GUTTMAN had not been favorably impressed by its use, and had noted the production of rigors.—*Lancet*, December 25, 1886.

SURGICAL TREATMENT OF PERITONITIS.—TRUC, of Paris, in the *Revue de Chirurgie*, No. 11, 1886, states the indications for surgical interference in peritonitis to be as follows:

The presence of grave general or functional disease dependent directly upon peritoneal inflammation, and seriously threatening the life of the patient.

Encysted peritonitis demands the evacuation of the contents of the cyst and its thorough disinfection.

In diffuse forms, if the cause be known, treatment should be directed against it; if it be not known, a thorough exploratory laparotomy should be made, and the case treated in accordance with the indications found.

Collapse and hyperpyrexia are contraindications to operation.

A BEVERAGE USED IN BRIGHT'S DISEASE.—PROFESSOR SEMMOLA, of Naples, has recommended the following to be taken as a beverage:

Sodii iodid.	gr. xv.
Sodii phosphat.	gr. xxx.
Sodii chlorid.	ʒjss.
Aquæ potabilis	Oj.

This may be drunk mixed with milk, if the taste is objectionable.—*Bulletin Générale de Thérapeutique*, November 30, 1886.

STUDIES IN THE ELIMINATION OF POISONS.—SANQUIRICO, of Siena, has investigated the elimination of poison by the kidneys, and the means of increasing such elimination. His studies were based upon the well-known facts that the organism often rids itself of injurious substances by the kidneys, and that the vascular system has the power, without undergoing extensive alterations, of permitting the exosmosis of fluids which had been injected into the body to the extent of eight per cent. of the body-weight.

The introduction of neutral fluids increases the tension of bloodvessels, and this tension is relieved by the organs of elimination.

Taking advantage of these laws of the economy the investigator experimented with chloral and aconitine in the following manner: A minimum fatal dose was given to an animal, and on the appearance of the first symptoms of impending death a three-quarter per cent. solution of chloride of sodium was injected in the subcutaneous tissues of the neck in amount eight per cent. of the weight of the animal; in the case of poisons the

action of which is immediate, the injection was made as soon as the poison had been taken.

With alcohol, strychnia, and chloral profuse secretion of urine occurred, and the animal recovered; in poisoning with aconitine the quantity of urine was often small, and the animals perished before elimination could be established; when the urinary secretion gradually increased the animal was often saved. The poisons used were found in the urine of animals which recovered.

Curarine, morphine, and hypnone were given, and ten per cent. of the body-weight in neutral solution was used with entirely negative result; the secretion of urine was never established after the administration of the poison.—*Centralblatt für die medicinischen Wissenschaften*, December 18, 1886.

EXPERIMENTS IN TRAP SIPHONAGE AT THE NAVY MUSEUM.—Repeated experiments on trap siphonage have shown beyond question that the ventilation of soil-pipes and traps is a safeguard against the entrance of sewer gas into dwellings except in unusual contingencies, provided the general plan of the drainage and sewerage is correct, and the workmanship good. The experiments at the Navy Museum in Washington have confirmed the results of those reported to the National Board of Health by Philbrick and Bowditch, and are stated in the following terms:

1. The seals of ventilated traps are safe against siphonage and back pressure.

2. The seals of unventilated traps are never safe from siphon action or back pressure, except in deduction four.

3. The vertical vent should be three inches, with a four-inch soil-pipe.

4. Traps connected on a horizontal pipe and fixtures discharging on the same level into horizontal pipe, apparently have no effect on unventilated traps.

5. All varieties of non-mechanical traps are more easily affected by back pressure than by siphonage.

6. The ball-traps were not affected by back pressure, but by siphonage.

7. The Sanitas trap withstood siphon action better than any of the patent traps, but was easily affected by back pressure.

8. The sewer air is more liable to enter unawares by back pressure through the seal of the trap, because the seal remains unbroken.

9. Difference in friction of iron and lead pipes made no apparent difference in the effect on the traps.

We are left in the dark, however, as to the precise nature of the unusual contingencies under which it is admitted that ventilated traps may be siphoned out and the emanations from the sewers enter houses; and Putnam and Waring think that they have shown that the so-called unusual conditions may occur where not in the least suspected, although a patent trap and water-closet intended to meet these "unusual contingencies" might perhaps serve as a bias against entirely unprejudiced judgments in the case.

It is true, however, that the approved methods of plumbing are now so costly as to make them practically unattainable to many householders, and that, outside of a very simple system of plumbing for moderate-sized houses, it is difficult to know with certainty what is safe and what not. The Museum of Hygiene, under the Navy Department, has an excellent opportunity to show just what the conditions are by which water-closets and soil-pipes inside a house may be made free from danger, and, it is to be hoped, that this will be done, no matter what the cost of time or money. If plumbing can be simplified and cheapened at the same time, the benefit to society will be incalculable.

URINE.—The following is a summary of the investigations made in the study of the urine during the past year, as given by the *British Medical Journal* of December 25, 1886. The acid reaction of urine is due to the excess of acid over normal phosphates. The ratio of the phosphoric anhydride combined as normal phosphate to that as acid phosphate is the following: evening urine, 91 : 100; night urine, 56 : 100; morning urine, 58 : 100; or for the urine of the twenty-four hours, as 69 : 100.

Hypobromite solutions do not keep well, and accordingly Lunge has recommended the use of A. Frank's bromum solidificatum. The solution is thus prepared: 400 grammes of caustic soda are dissolved in a litre of water and kept in a stoppered bottle. To 100 cubic centimetres of this solution about 100 grammes of bromine, that is to say, 10 centimetres of the stick of the brom. solid., are added. When the stick is decolorized the solution can be employed.

On the relationship of the formation of urea and uric acid to the secretion of bile some interesting papers by Noel Paton will be found in this year's *Journal*, to which we must direct the reader. Suffice it here to say that the author establishes a direct relationship between the urea formation and the biliary secretion.

Albuminuria.—The temperature, according to Loewy, exercises a marked influence on the composition of filtered liquids. The quantity of the filtrate increases with the elevation of temperature. He agrees with Senator in regarding the albuminuria occurring in certain febrile conditions as due to the elevation of temperature.

The effect of compression of the thorax has been studied by Schreiber, according to whom a slight temporary albuminuria is the result, its degree being increased with the duration of the compression. Serum albumin and globulin were the albumins met with. Schreiber concludes that dyspnœa was not the cause of the albuminuria, but that the factors are: the diminution of the difference of pressure normally existing between the alveolar capillaries of the lung and the left ventricle; the diminished calibre of the pulmonary vessels, and the diminished extent of the respiratory excursions. A stasis in the pulmonary circulation is thus produced which is rapidly propagated to the renal capillaries, with consequent filtration of albumen. In young subjects (eleven to fifteen years) a thoracic compression lasting half a minute has sufficed to cause the appearance of albuminuria, of which there were no traces an hour subsequently.

Biliary Urine.—Oliver has proposed the following delicate test for the biliary acids. The solution is prepared thus: peptone in powder, 1.8 grammes; salicylic acid, 0.24 gramme; acetic acid, 60 drops; distilled water, 240 cubic centimetres. One part of urine containing biliary salts in a pathological proportion when

added to three parts of this reagent causes the appearance of an opalescence, which disappears on the addition of one or two drops of acetic acid, but not on boiling. The urine should be transparent; if it contains urates in excess it should be warmed; if muddy from phosphates it is to be slightly acidified with citric acid, or filtered; if blood or albumen is present it is to be boiled and then filtered; and it is further advisable to reduce the density of the urine to 1.008.

Sugar.—Two delicate tests have been proposed. A solution of hydrochloride of phenylhydrazine, containing sodic acetate, gives a yellow crystalline precipitate. By this test sugar is never found in normal urine. If much albumen is present it should first be separated. A still more delicate test is the following, by means of which sugar can always be detected, even in normal urine. A small quantity of the saccharine solution is mixed with two drops of an alcoholic solution of naphthol or thymol, and an excess of strong sulphuric acid added; a deep coloration is produced, violet with the former and red with the latter. The test is of especial value for microchemical examinations.

Pigments.—The physician's attention should be directed solely to two urinary pigments, urobilin and indican, as the existence of other pigments is doubtful, and their significance equivocal. Cervesata has published some interesting conclusions as to urinary indican, of which we shall briefly summarize the chief. Normal urine contains uro-indican, whose artificial or spontaneous decomposition gives rise to indigo. To detect the indigo blue, it suffices in most cases to employ sulphuric acid and chloroform; but it is always useful to treat the urine previously with basic acetate of lead, particularly when it is scanty, dense, and high-colored. The sulphuric acid is preferable to the hydrochloric, because the reaction occurs more readily and more markedly, and is less liable to error. Vierordt's spectrometric method is recommended for its determination. In individuals in good health the indigo is found in very small amount, increasing, however, under a meat diet, but to a greater extent if aromatic compounds are administered; fasting, on the other hand, causes its diminution. Its elimination is greatly increased in diseases in which inanition and marked tissue-waste are prominent factors; also in diseases of the abdominal organs, particularly of the intestine; in many nervous affections, in splenic anæmia, renal cirrhosis, diabetes, and chronic lead poisoning. On the other hand, its elimination is very slight in fevers, parenchymatous nephritis, chlorosis, scrofula, advanced phthisis, catarrhal jaundice, hepatic cirrhosis, and ovarian tumors. The variations in its elimination are probably to be attributed to nervous modifications of the pancreatic secretion.

Aromatic Constituents.—Baumann has tried to determine the relationship between the putrid fermentations occurring in the intestine, and the formation of the sulphovinic and oxy-acids. From experiments on a patient with intestinal fistula he was led to conclude that when the putrefaction diminished in the intestine, as after the administration of calomel, the sulphovinic acids diminished equally in the urine.

A concentrated solution of picric acid produces a slight crystalline sediment in normal urine after an hour or two. Jaffe finds this to be partly uric acid and partly a double salt of kreatinin picrate with potassic picrate. It forms, indeed, a delicate test for kreatinin, giving a deep-red color with dilute solutions in the cold.

Alkaloids.—To detect these the reagent employed is thus prepared: iodine, 8; potassic iodide, 10; water, 10. Cool the urine to 0° C., after adding a few drops of the reagent: then concentrate a bright light by means of a lens on the urine in a test tube placed against a dark background. The green fluorescence is readily seen. It can thus be shown that the proportion of alkaloids in the urine passed during the eight hours after waking is five times as great as in the urine of the rest of the day.

Toxicity.—Bouchard has continued his researches as to the toxicity of normal urine. Man, even in a normal condition, is constantly destroying and excreting poisons either introduced into or formed in the organism, and the urine is one of the chief sources of elimination.

After an intravenous injection of normal urine, there is contraction of the pupils followed by quickened shallow respirarions and muscular weakness. The urinary secretion augments and the temperature falls. Death happens generally without convulsions, the animal dying most frequently in a state of coma. The quantity of normal urine necessary to destroy the life of a kilo of living tissue is very variable, oscillating between 10 cubic centimetres and 122 cubic centimetres per kilo, but 45 cubic centimetres may be taken as the mean in an adult. A man requires about two and one-sixth days to fabricate the quantity of urinary poison capable of poisoning himself, a coefficient, it may be said, which varies little in health, but greatly in disease.

The urine secreted during sleep is less toxic than that of the waking period. The character of the poison eliminated in the two periods also differs greatly, that of the waking period being narcotic in its properties, and that of sleep being convulsive. During the former, therefore, the body produces a substance which, accumulated, will induce sleep; during sleep, on the other hand, it elaborates a convulsive principle, which, when it accumulates, would tend to produce muscular irritation and provoke wakefulness. The variations in the toxicity depend especially on the greater or less intensity of the oxidations; with increased muscular activity, for example, during which more oxygen is consumed, the toxicity is lessened.

Feltz has experimented with febrile urine, and he finds that it is much more toxic in its properties; and, further, that there is no proportional relation between the density of the urine and its toxicity, as is the case with normal urine. There must, therefore, be other toxic agents in febrile, than are to be found in normal urine.

According to Lépine and Aubert, the special toxicity of febrile urine seems to be due to its organic rather than its saline constituents, as has been affirmed by some authorities; and, contrary to Bouchard and Pouchet, Villiers finds that normal urine never contains alkaloids, although these were present when the patient was suffering from febrile or inflammatory affections. Rovighi, again, like Feltz and Ritter, concludes from his experiments that uræmia is essentially determined by the salts of potassium, and that the uræmic convulsions are caused by an accumulation in the blood of inorganic salts, and more especially of those of potash.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JANUARY 15, 1887.

FORMS OF ALBUMINURIA NOT DANGEROUS TO LIFE.

IN this age of refinement in diagnosis we are apt to place too much stress on some special symptom to the neglect of the general features of a case. Thus, in the hands of many physicians the stethoscope has led to error when the presence of a murmur has been regarded as proof of the existence of heart disease. So also albumen in the urine has for years been considered by the profession and the public as an occurrence of the gravest moment, indicating serious, if not irreparable, disease of the kidneys. In *The American Journal of the Medical Sciences* for January, 1887, GRAINGER STEWART has a very timely article "On Some Forms of Albuminuria not Dangerous to Life," from which we may derive several important lessons. He does not consider accidental albuminuria, due to admixture of the urine with blood or pus, nor the febrile form, nor that due to passive congestion. Four categories are defined, the cases in which, though varying greatly, may with advantage be distinguished from each other, viz., paroxysmal albuminuria; dietetic albuminuria; albuminuria from muscular exertion, and simple persistent albuminuria.

Paroxysmal or intermittent albuminuria is characterized by the sudden occurrence of albumen in the urine, often in large amount, with numerous tube casts, the process lasting a variable time, perhaps only a few days and occurring at intervals without any appreciable cause. This form is most commonly met with in young adults who are the subjects of some constitutional taint, and the attacks are apt to be brought on by cold or exposure, and by errors in diet. It has close relationships to intermittent hæmoglobinuria, as very clearly pointed out by Ralfe in the *British Medical Journal* of November 27, 1886. In fact, the attacks may alternate, and this writer brings forward evidence to show that "functional albuminuria is only a minor manifestation of hæmoglobinuria and that the two conditions may merge one into the other." Both conditions are induced by increased destruction of blood-corpuscles—hæmolysis—probably in the liver. The explanations offered of the process are purely hypothetical, but it is satisfactory to learn that the attacks do not prove permanently injurious. Stewart recommends chloride of ammonium as a suitable remedy, while Ralfe relies chiefly upon arsenic, which seems to have the power of lessening the hæmolytic action of the liver and at the same time strengthening the resisting powers of the corpuscles.

Of dietetic albuminuria, which is more common, the writer gives several very instructive examples and recognizes three factors as possible existing causes: First, the use of certain kinds of food; second, the entrance of food (of any kind) into the stomach; third, one or both of these in association with other influences, such as exercise or the time of day. A most curious fact is the appearance of albumen immediately after taking food into the stomach, the nature of the diet having little or no influence. In such instances the time which elapses between the ingestion of the food and the appearance of the albumen is so short that we must suspect a reflex vascular influence. In other cases the increase in the saline constituents of the blood after a meal may increase the diffusibility of the albumens and permit of their filtration in small amounts through the capillaries of the glomeruli.

Albuminuria following muscular exertion has long been recognized, and of late years several important memoirs have been written on the subject. Stewart reports two cases very fully in which a careful study excluded all causal conditions save exercise. The mere fact of rising seems to have an influence in inducing the albuminuria, for in his first case neither exercise in bed nor massage caused any change in the urine, while the change from the recumbent to the erect posture was invariably followed by the onset of albumen. In the state of our present knowledge we cannot give a satisfactory explanation of these cases, but it is very important to recognize their existence. In treating such cases rest and a careful diet will usually suffice to remove the condition, which is usually transitory. The use of ergot and belladonna is suggested.

Cases of the fourth category, simple persistent albuminuria, are more rare and the condition is much more difficult to separate from one of positive renal disease. The principal features of these cases are the continued presence of albumen, without tube casts, and without cardio-vascular changes,

or signs pointing to subacute nephritis. The health may not be seriously impaired for years, but the prognosis in these cases is more serious as the condition may culminate in organic disease. In distinguishing between the functional and organic cases Stewart lays stress upon the quantity of urea, the presence or absence of tube casts, and the state of the cardio-vascular system. In the fourth category, he says: "So long as the solids are in normal quantity and the vascular changes do not manifest themselves, we may speak hopefully even in such cases."

This writer gives a more favorable opinion of these cases than has hitherto been expressed, but we feel certain that it will be justified by future experience. A very large amount of mental worry and suffering is annually caused by the widespread belief that the presence of albumen in the urine is an indication of the gravest character, and by too many, both lay and medical, the condition is regarded as identical with Bright's disease. Prof. Stewart's article will do incalculable good in helping physicians to discriminate between the non-dangerous and the serious forms of albuminuria.

THE TREATMENT OF VARICOSE VEINS.

IN THE MEDICAL NEWS for September 11, 1886, we directed attention to the operation of excision in the treatment of varicose veins. The favorable opinion of this operation was supported by a letter from DR. S. J. RADCLIFFE, published in THE NEWS for September 25, in which a report was given of Mr. Clutton's success by this method in St. Thomas's Hospital, London. We may add that FRY has also employed this method with great success, and has recorded six such cases in the *British Medical Journal*, for September 5, 1885; while LE BRUN reports, in the *Journal Méd. de Bruxelles*, for March and April, 1885, twenty-one such operations without a single mishap. These results certainly indicate that excision for varicose veins is an excellent operation, and justify the opinion that it is simple, safe, and almost sure to effect a cure.

The plan of injecting into varicose veins various coagulating substances still holds its ground, however, and may be rationally adopted in cases in which either the patient or the surgeon does not wish to face a cutting operation. Very recently, STEVENSON, in *The Lancet*, for October 23, 1886, reports eight cases treated with perfectly satisfactory results by injection of pure carbolic acid, as recommended by Watson Cheyne. The circulation is controlled by the Esmarch tube, applied round the thigh, while the patient stands, first with a few turns just tight enough to occlude the veins, and then firmly enough to cut off all the circulation. One minim of pure carbolic acid is then injected at a number of points, about an inch and a half apart, and cotton and collodion are applied over the punctures. The Esmarch tube is not removed until fifteen minutes after the completion of the last injection, and then the circulation is permitted to return only by very slow degrees. This is to avoid the danger of an embolus being swept into the general bloodvessel system. In addition, the patient is required to keep his bed for about a week.

By this means excellent results have been obtained in the treatment of varicose veins, although abscesses sometimes form at the seat of injection. Stevenson found this to occur in about ten per cent. of the punctures, but the abscesses were not larger than a pea, and they were painless.

In the *Medical Record*, for December 12, 1885, WEBER reported a successful treatment of varicosity of the saphenous vein by means of injection of four drops of pure carbolic acid at four different points, while the vein was compressed above and below the part injected until a coagulum was formed in it.

It appears, then, that the operation of excision of varicose veins has not entirely supplanted the method of coagulating injections, and it probably never will do so, since circumstances altogether unconnected with timidity on the part of the patient, or conservatism on the part of the surgeon, must not rarely debar the former procedure. Such being the case, we think the injection of carbolic acid, in the prudent manner suggested by Cheyne, is one of the safest and best ways of treating this frequent and troublesome disorder.

THE CURETTE AS AN ABORTIFACIENT.

AT a recent meeting of the Association of Physicians in St. Petersburg, DR. WEIDEMANN advocated the use of the curette in removing the fecundated ovum, when the production of abortion is imperatively demanded before the third month of gestation, as it may be not infrequently, especially in cases of exaggerated hyperemesis.

The arguments brought forward in support of the claim that this method is preferable to any other are forcible. The fœtus with its enveloping membranes, during the first three months of pregnancy, forms a polypoid tumor within the uterus, the attachment of which is at the seat of the placenta, and is quite firm, while the membranes are delicate and easily ruptured; if, therefore, as is often the case in early abortion, the fœtus alone is expelled, leaving behind its shell and the placenta, their subsequent decomposition is likely to lead to serious septic infection. With the curette the removal of the entire ovum with the placenta may be accomplished with certainty, avoiding the risks of the development of septicæmia, and, by the rapidity of the operation, preventing any excessive hemorrhage, which is often

an alarming complication in those cases in which, the expulsion of the ovum having begun, the conclusion of the act is left to nature. It is necessary to dilate the cervix rapidly before employing the curette, in order to admit of its ready introduction, and to facilitate the removal of the uterine contents. It is needless to add that the strictest antiseptic precautions should be observed.

THE HOT SPRINGS HOSPITAL.

SEVERAL years ago the late Senator Logan visited Hot Springs, Arkansas, and obtained there so much relief from rheumatic troubles, with which he was afflicted, that he determined to make the benefits of the place available for the army and navy, and to that end obtained an appropriation for the construction of a hospital at Hot Springs for the use of the officers and men of those services. The sketch plans for this hospital were prepared by Dr. Billings, of the Army, and these, after approval by the Secretary of War, were elaborated, and detailed drawings and specifications prepared by a Washington architect, Mr. Smithmeyer. The buildings are now completed, Dr. R. S. Vickery, of the Army, has been assigned as surgeon in charge, and a circular from the War Department announces that the hospital will be opened for the reception of patients January 17, 1887. The circular says:

"Relief may reasonably be expected from the use of the Hot Springs water in the following classes of diseases, viz., gout and rheumatism in their various forms, after the acute or inflammatory stage has passed; neuralgia, peripheral or central, especially when depending upon gout, rheumatism, specific infection, or metallic poisoning; paralysis, if not recent, progressive, or organic; locomotor ataxia, or tabes, if not in advanced stages, and especially if traceable to specific infection; Bright's disease of the kidneys, only in the early stages; diseases of the bladder and urinary organs; functional diseases of the liver; dyspepsia; chronic diarrhœa and catarrhal diseases generally; chronic skin diseases, especially of the squamous or scaly forms; chronic conditions, resulting immediately from specific infection, either syphilitic or malarial; chronic alcoholism.

"In general terms, it may be stated that the Hot Springs water acts by stimulating all secretions and organic functions, increasing appetite, promoting digestion and assimilation; favoring tissue change and excretion of waste products, relieving internal congestions, and stimulating the blood-making function.

"In the following classes of diseases the use of the Hot Springs water is contraindicated: All acute, inflammatory diseases; tuberculosis; organic diseases of the heart and brain; aneurism; cancer; and all diseases in which stimulation of the circulation is to be avoided."

The hospital will accommodate about twenty officers and sixty-four enlisted men. Authority for admission to it is to be obtained from the Adjutant-General of the Army or from the Surgeon-General of the Navy.

In Europe it is very common to provide special hospital accommodation at certain mineral or thermal springs for the benefit of the army, but this is the first time it has been tried in this country, and the results will be looked for with interest. It should be possible from the records of this hospital to obtain much more definite information than we at present possess as to the real therapeutic efficacy of the Hot Springs waters.

MYXŒDEMA.

ORD, to whom the profession is indebted for the best description of this disease, holds that sporadic cretinism is only myxœdema beginning in early life, before development is complete; and since Kocher's observations the opinion has been widely held that myxœdema, cretinism, and cachexia strumapriva are phases of the same essential condition and due to the same cause, namely, to abolition of the function of the thyroid gland. We have already referred to Horsley's experiments on monkeys, in which removal of the thyroid gland, carefully performed, without injury to the nerves, was followed by the symptoms typical of myxœdema; and also to the interesting paper by Reverdin on the identity of spontaneous and operative myxœdema. In addition to what is there stated we would call attention to the fact that, in the *Medical Record* of January 24, 1885, Kinnier gave an account of a case of spontaneous myxœdema, in a woman forty-five years old, with characteristic symptoms, and emphasized the identity of the symptoms with those of the so-called cachexia strumapriva. Wadsworth has also described an interesting case in the *Boston Medical and Surgical Journal* of January 1, 1885. Further, Miller has reported, in the *British Medical Journal* of February 28, 1885, the case of a woman, thirty-eight years old, who developed myxœdema after labor accompanied by profuse hemorrhage; while Suckling, in the *Lancet* of May 16, 1885, gives an account of a case of myxœdema in a woman seventy-six years old.

All these cases go to show that there is a spontaneous myxœdema which cannot be distinguished from that which follows removal of the thyroid gland. They do not, of course, invalidate the opinion that the latter is dependent upon the operation. There is entirely too much evidence now accumulated to permit any doubt that the removal of the thyroid gland may be followed by myxœdema in patients who had not manifested any tendency to it, and it cannot be denied, in the face of Horsley's experiments on monkeys, that it may follow the operation in cases in which there is no reason whatever to suspect a latent tendency to it. The

similarity of the manifestations of surgical and spontaneous myxœdema does not establish the fact that they are identical diseases, so far as their essential cause is concerned. Nevertheless, it is curious to observe that most of the cases of spontaneous myxœdema occur in persons who have passed the period at which goitre usually develops, and this fact furnishes some support to the theory of Ord that it is but a later manifestation of a tendency which, under circumstances favorable to its early development, shows itself in enlargement of the thyroid gland. It may yet be shown that goitre is Nature's safety-valve, which, being removed, the pathological process is only diverted and manifests itself in a different set of tissues. The effect of removal of a healthy thyroid gland may even similarly let loose upon the adjacent tissues forces which were innocent so long as they were undisturbed. If this view seem reasonable, we think that there may be, hereafter, more harmony between those who hold the opinions of Ord, and those who consider spontaneous and surgical myxœdema to be distinct disorders.

BRAIN INJURY IN FORCEPS DELIVERY.

AT a recent meeting of the Edinburgh Medico-Chirurgical Society, BYROM BRAMWELL showed a boy suffering with left hemiplegia, which he attributed to an injury received at birth. The delivery of the patient's mother was tedious, and had been finally effected with the forceps. Since infancy the child had been subject to epileptiform seizures, but at the time of observation there was no mark of injury of the cranium. The surgical aspect of this case involved the question of operative interference, suggested by the fact that the patient could localize a painful point over the motor area of the left arm. The judgment of the Society was adverse to it, and we do not see how it could have been different.

This case, however, is not cited so much on account of its surgical aspects as on account of its bearing upon the question of the effect upon an infant of the compression of the head by the forceps. That decided compression of the child's head often takes place in forceps delivery, in spite of the greatest care on the part of the accoucheur, and notwithstanding the use of the most suitable form of forceps, cannot be doubted, and it would be interesting to have some collection of the proportion of cases in which subsequent manifestation of brain disturbance could be reasonably attributed to the accidents of such delivery.

One of the ablest neurologists of this city entertains the opinion that very many cases of impaired brain function are due to compression at the time of birth; and his opinion seems reasonable enough. The case related by Bramwell is one in point, and others might be cited. Although it is not perfectly clear, it may be, however, that those who think that the remote dangers to the child in forceps delivery are much greater than is generally supposed, may speak more from a general impression than from a careful study of the subject. Still, their views are so plausible *à priori*, that it is desirable that enough evidence be collected to settle the question definitely for the benefit of the many accoucheurs who apply the forceps frequently.

AT the annual meeting of the College of Physicians of Philadelphia held January 5, 1887, the following officers were elected: President, S. Weir Mitchell, M.D.; Vice-President, John H. Packard, M.D.; Censors, Drs. Lewis Rodman, William Goodell, Alfred Stillé, and Samuel Lewis; Secretary, Isaac Norris, Jr., M.D.; Treasurer, Charles Stewart Wurts, M.D.; Honorary Librarian, James H. Hutchinson, M.D.; Recorder, J. Ewing Mears, M.D.

AT the annual meeting of the Philadelphia County Medical Society, held on January 5, 1887, the following officers were elected: President, Dr. J. Solis Cohen; Vice-Presidents, Drs. W. W. Keen and E. T. Bruen; Secretary, S. Solis Cohen; Treasurer, L. K. Baldwin; Censors, Drs. Joseph Hearn and De Forest Willard.

DR. JOHN SCOTT, of San Francisco, an active and able gynæcologist, died on December 24, 1886. He had been largely instrumental in founding the California State Woman's Hospital, and was a member of the State Society, the San Francisco Obstetrical Society, and, at the time of his death, Vice-President of the American Gynæcological Society.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 6, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

ELECTION OF OFFICERS.

THE annual election of officers resulted as follows:

President.—A. Jacobi, M.D.

Vice-President.—Wm. H. Draper, M.D.

Treasurer.—Wm. F. Cushman, M.D.

Member of the Board of Trustees.—Everett Herrick, M.D.

Member of the Committee on Admissions.—H. E. Crampton, M.D.

Member of the Committee on Library.—F. P. Kinnicutt, M.D.

DR. L. EMMETT HOLT read a paper on

THE ANTISEPTIC TREATMENT OF SUMMER DIARRHŒA.

The term summer diarrhœa, he said, he used for the reason that it expressed an affection with which all are familiar, without raising any questions in regard

to the pathology of the conditions present. While this paper was specially devoted to the medicinal treatment, the author laid stress upon the point that other methods of treatment than the use of drugs were not ignored by him. It is of prime importance that suitable food and the best hygienic surroundings should be secured for the patient. Unfortunately it is often impossible to secure satisfactory sanitary conditions for the children of the poor in large cities; but with suitable care and the use of appropriate remedies, much could be accomplished.

These cases of summer diarrhœa, with the exception of instances of pure cholera infantum, Dr. Holt believed, are all of dyspeptic character, and are primarily due to fermentation or putrefaction in the intestines. Among the factors entering into the causation of the trouble, he mentioned heat, improper feeding, and bad hygienic surroundings. The affection is evidently not due to heat alone, or else we should find that the greatest mortality was among infants under six months of age, which is not the case. During the first six months a much larger proportion of children are wet-nursed than later on, and it is after this age that the summer diarrhœa is the most fatal.

In speaking of the influence of heat, he spoke of its effects upon the food as well as upon the child, and referred to an instance in which, at the New York Infant Asylum, no less than twenty-three children became affected with diarrhœa in a single day from the use of tainted milk. In tenement-houses, all the conditions are exceedingly favorable for the contamination of milk, and it is only a wonder that more children do not suffer from this cause than is actually the case. In this connection he spoke of the development of poisonous ptomaines from food, and alluded particularly to the investigations of Professor Vaughan, of the Michigan State Board of Health, in regard to the principle which he has designated as "tryrotoxicon." Brunton's researches he also thought had furnished the solution of many hitherto insoluble problems. Cerebral symptoms have been generally supposed to be due to the sudden stoppage of the diarrhœa. Huchard has shown, however, that poisonous ptomaines are evolved from human feces in health; and this is the case to a much larger extent in disease.

In summer diarrhœa, Dr. Holt went on to say, the inflammatory changes are usually in the large intestines, and colitis is secondary and consequent. A specific microbe, as the cause of the disease, has not as yet been demonstrated; but quantities of bacteria, of various kinds, are always found to be present. The indications for treatment are as follows:

1. Clear out the bowels.
2. Stop decomposition.
3. Restore healthy action in the bowels.
4. Treat the consequences of the intestinal disease.

In the first place, it is necessary to clean out the bowels, for the same reason that the surgeon thoroughly cleanses a wound before applying his antiseptics. In all cases Dr. Holt begins his treatment with a cathartic, in order to remove the altered secretions, and if the stomach is not very irritable, there is nothing which, in his opinion, is to be compared to castor oil for this purpose. If the stomach is irritable, he is in the habit of using large injections of water by means of a fountain syringe. He has found by experiment that it takes about a pint of water to reach the ilio-cæcal valve, and at least this quantity should be used. In many cases the castor oil is all the medicine that is required, if proper food and general care are employed afterward, and the usefulness of this remedy is perhaps better understood by the laity than by most of the profession. In cases, however, in which the passages, consisting of pure serum, are odorless and alkaline in reaction, no preliminary cathartic is required.

In order to stop decomposition and restore healthy action in the bowels, he said he had found salicylate of sodium the most efficient agent. If there is much vomiting, it is better to withhold food altogether for from ten to twenty-four hours; employing carbonic acid water, or thin barley water, for allaying thirst. In children under two years of age, no milk whatever should be allowed; but in case milk is employed, peptonized milk is much less likely to do harm than either condensed or ordinary cow's milk. He has known many relapses to be brought on by the use of milk.

The treatment of the consequential lesions was the fourth point considered. When a condition of ulceration has been reached, he believes the use of astringents to be absolutely valueless. Three things are required for a cure: (1) Appropriate dietetic treatment; (2) the continuance of the antiseptic; and (3) the washing out of the whole large intestine every day with pure water, or with a weak antiseptic or astringent solution. The chemical agents which he prefers for these injections are benzoate of sodium and nitrate of silver. It is a fact, he said, that all drugs which have formerly proved useful in the treatment of summer diarrhœa, with the exception of opium (in regard to which there has been much discussion), are of a more or less antiseptic nature.

Dr. Holt then proceeded to give a *résumé* of the history of the use of antiseptic remedies proper in this affection, from the time when Mays first employed creasote in 1846. As long ago as 1853, Matthison had reported much success from the use of salicine, and in 1858 S. W. Smith published in the *British Medical Journal* his successful experience with willow charcoal. In 1879 Kilner used salicylate of bismuth and calcium at St. Thomas's Hospital, London; and in 1880 Hutchins, of Brooklyn, reported good results from the use of salicylate of calcium alone. Segue, of Brooklyn, also meet with much success in the treatment of the diarrhœa of phthisis with the salicylates. In 1886 Braithwaite recommended, in the *British Medical Journal*, the use of salicylate of iron, which he had found very efficient. Naphthalin has been highly lauded by Fallenberg and other writers, and bichloride of mercury is recommended in Ringer's *Therapeutics*. Rosenberg, Millard, and Marten, have reported good results with the latter remedy; and Schultz has treated seven cases of dysentery with it, with but one fatal result.

Even the most recent text-books on diseases of children, Dr. Holt went on to say, advocate practically the same treatment for summer diarrhœa that was in vogue fifty years ago. In order to find out what is the present practice in New York institutions, he wrote to the physicians of fourteen of them, including the Nursery and Child's Hospital, the Foundling Asylum,

St. Mary's Hospital for Children, the Demilt Dispensary, and a number of other prominent hospitals and dispensaries, in which upward of 40,000 children are treated annually—25,000 for diarrhœal diseases. He found, among other facts, that opium is used in nearly all, and bismuth in all. Castor-oil, as a preliminary medication, is used in six, and castor-oil emulsion, with equal parts of the oil and paregoric, in three. Chalk-mixture, in combination with paregoric and an astringent, is used in several; calomel in three; ipecac in three; pepsin in one; iodoform in one; morphia and atropia hypodermatically in one; and astringent injections in three.

Dr. Holt said that in his own experience he had found that with the use of opium, bismuth, and astringents, 50 per cent. of cases were cured, 27 per cent. were improved, 17 per cent. were not improved, 7 per cent. died. Abstinence from milk was not so strongly insisted on in his earlier cases as in his later ones. A year ago last summer he first commenced the use of salicylate of sodium. In about two-thirds of the cases in which he used it he gave castor-oil as a preliminary to the treatment. In a few cases where there was great irritability he employed Dover's powder simply for the purpose of controlling this. Out of 81 cases treated with the salicylate of soda, 60 were cured, 14 improved, 6 not improved, and 1 died. The results of all his cases were as follows: Cured, 84 per cent.; improved, 7 per cent.; not improved, 7 per cent.; died, 1 per cent. The unimproved cases, he said, illustrated the difficulty of keeping up a proper course of treatment among the children of the poor.

Of 44 cases in which he had employed naphthalin, 67 per cent. were cured, 15 per cent. were improved, 13 per cent. were not improved, and 1 per cent. died. In 27 cases treated with resorcin, 22 per cent. remained unimproved; and it soon became evident to him that this agent was not nearly so efficient as either salicylate of sodium or naphthalin. He had also used bichloride of mercury in 28 cases, but had not found it as successful as the remedies named. The comparative results of treatment by these different remedies were, then, as follows:

Cured by opium, bismuth, etc.	.	50 per cent.
" " salicylate of sodium	.	84 "
" " naphthalin	.	67 "
" " resorcin	.	55 "

Dr. Holt then related a case seen in consultation, which illustrated the value of salicylate of sodium. The child was seventeen months old, and was first seen by him on the fifth day of the disease, when it was in an apparently hopeless condition; the ordinary treatment by bismuth and opium having entirely failed to arrest its progress. The rapid, weak pulse, elevated temperature, and other unfavorable symptoms which were present he attributed to the toxic effect of the decomposition which was taking place in the intestinal canal. He suggested the employment of castor oil, to be followed by the salicylate of sodium. The physician in attendance strongly objected to the cathartic dose, on the ground that the child was not strong enough to stand its depletory effect. He was finally persuaded to try it, however, and the patient rapidly improved under the antiseptic treatment by which it was followed.

Dr. Holt gives the salicylate of sodium in doses of from one to three grains, every two hours, and in the form of an aqueous solution, which can be taken with the food or drink. Instead of producing vomiting, he has found that it often allays irritability of the stomach. Naphthalin can be given in doses of from half a grain to five grains, and resorcin in doses of from half a grain to two grains. Bichloride of mercury is apt to disagree with the stomach, and he has known doses of $\frac{1}{120}$th to $\frac{1}{60}$th of a grain produce vomiting.

While summer diarrhœa is not to be regarded as depending on a single uniform agent, the immediate cause of diarrhœa must be looked for in the putrefactive changes taking place in the food (which, indeed, often begin outside the body before it is eaten); diarrhœal discharges, at the outset at least, should be regarded as salutary. Dr. Holt mentioned that he does not undervalue the efficiency of opium in other forms of diarrhœa. In conclusion, he said that the use of evacuants constitute an essential part of the antiseptic treatment of the disease under consideration, and that, as the result of his experience, he gave the preference to salicylate of sodium after a cathartic had been employed. The antiseptic treatment is especially valuable, because it removes the cause of the trouble in the intestinal canal, and does not simply combat its effects.

DR. WILCOX related his experience with naphthalin in the treatment of diarrhœa, stating that he had employed it in thirty-two cases, nearly all of which, however, were in adults. In his hands it had proved so efficient that he had come to regard it as of the same value in diarrhœa as mercury, and iodide of potassium in syphilis, or quinine in malarial trouble. In order to secure its full effect the patient should take at least 60 grains a day, and in some cases 120 grains a day are required. He gave it chiefly in starch capsules, with oil of bergamot to conceal its odor. Occasionally he had found that the urine became smoky under its use, but no albumen or casts could be detected in it. He had employed it with excellent effect in eighteen cases of chronic diarrhœa, and some cases of chronic dysentery. In one case of twenty-five years' standing, in a man sixty-one years of age, a cure was effected by the use of 90 grains a day.

In two cases he had employed it successfully in the diarrhœa of typhoid fever. The patients were in the third week of the disease, and took from sixty to ninety grains a day; which reduced the stools to two in the twenty-four hours, and rendered them perfectly odorless. Naphthalin also had an antipyretic effect in these cases, and he regarded it as quite as safe as any of the antipyretics now so commonly employed, such as antipyrin, thallin, and antifebrin. He had also tried resorcin to some extent, but with very different results.

DR. ANDREW H. SMITH remarked that it had been his idea for some time that the cause of summer diarrhœa could be best treated by the aid of antiseptics. The essential oils which are in common use in domestic practice are really antiseptics, and the same is true of the pennyroyal, spearmint, and peppermint teas so often resorted to in the country.

DR. JOHN C. PETERS said that he believed he was among the first to designate summer diarrhœa as a filth disease. Bacteria will live in opium and in a ten grain

solution of calomel. He agreed with Dr. Smith in regard to the antiseptic value of the mints.

DR. VAN SANTVOORD said that Dr. Holt was no doubt correct in considering the disease primarily dyspeptic in character. In the Infants' Asylum, on Randall's Island, he had been in the habit of using opium where there had been frequent and watery passages, and he often gave it hypodermatically, employing from five to ten minims of the officinal solution of sulphate of morphia, with from $\frac{1}{300}$th to $\frac{1}{200}$th grain of atropia. Bismuth he regarded as of service, not simply from its mechanical effect, but because it is a true antiseptic, and he gave it in suitable doses after each feeding. The inflammatory changes in summer diarrhœa are largely located in the large intestine, and he thought that large astringent injections should be used to flush out the colon. He combined an alkali with the astringent in these injections in order to be able to get at the mucous membrane by removing the mucus from it. Nothnagel has shown that strong saline solutions excite retroperistalsis in the intestines, and he thought that these might perhaps be used with good effect.

The PRESIDENT heartily agreed with what Dr. Holt had taught in his paper, and particularly as to the antiseptic character of remedies long in use. As regards pepsin, which he never regarded as simply an inert mechanical substance, he had published an article twelve years ago, in the *American Journal of Obstetrics*, in which he distinctly claimed that it was an antifermentative; and such was still his conviction. He also agreed with Dr. Holt, as to the importance of appropriate dietetic treatment. If there is one special danger in summer diarrhœa it comes from the use of milk, and for twenty-five years he had taught that the disease could not be cured without the omission of milk. It is often necessary to withdraw it for a number of days; but there are plenty of things that can be resorted to which take its place. As a rule, he substitutes for it the white of egg, raw, mixed with barley water, or other farinaceous drink. Forty years ago Meiser, of St. Petersburg, advised the use of raw meat; but although this in some respects is an excellent form of nourishment, it should be avoided if possible, on account of the danger of introducing into the system the tænia canellata, a much more formidable variety of tapeworm than the ordinary tænia solium, because of the difficulty in removing it.

DR. GEORGE H. PEABODY said that he had come to look upon naphthalin as a very valuable addition to our therapeutic resources in a number of intestinal complaints. For some time past he has been using it in all the earlier cases of typhoid fever which came under his care at the New York Hospital. It is reasonable, he thought, to look for relief in a remedy which acts directly on the local lesions, and several cases have already occurred in his practice in which the disease was apparently aborted by this remedy. He referred particularly to a case which came under treatment on the second day of the disease. By the thirteenth day the fever was gone and convalescence had commenced; yet the patient had had the usual prodromal symptoms, and the characteristic eruption and enlargement of the spleen had afterward been well marked.

Dr. Peabody also mentioned a case of chronic diarrhœa of twenty-one years' standing, in which the patient never had less than seven movements a day. He had been under treatment for a broken leg in the surgical wards of the hospital; but though while there the usual astringent remedies were employed, the diarrhœa still continued unchecked. On his transferral to the medical wards he was placed on the use of naphthalin, and in ten days the case was cured; the passages by that time having become normal in quantity, color, consistence, and odor. He also mentioned another case in which the patient, who had had repeated attacks of chagres fever in Panama, suffered from chronic diarrhœa for four years. He also was completely cured by naphthalin, without the aid of astringents. All his cases of typhoid fever, Dr. Peabody said in conclusion, are given a preliminary full dose of calomel.

DR. WESLEY M. CARPENTER referred to the remedies which he had seen used with good effect in country practice. The first was hard cider, which was used with much benefit by veterans of the late war suffering from chronic diarrhœa. The second was salicin, which he had seen successfully employed in a large number of cases of dysentery and diarrhœa, including tubercular diarrhœa. Both these agents belong to the group of antiseptics.

DR. ARCHER H. SMITH asked if it was not true that the salts of salicylic acid are efficient only in the presence of acids.

DR. HOLT replied that the acids in the stomach and intestines would cover the case. Dr. Cauldwell, whom he had expected would be present this evening, had used salicylate of sodium with much success in twenty cases of the diarrhœa of phthisis.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, December 8, 1886.

TUMOR OF THYROID REMOVED BY SOCIN'S METHOD.

DR. WEIR showed a tumor recently taken out of the substance of the thyroid gland after the method advocated by Socin, of Basle. This surgeon, he stated, in order to avoid the necessity of extirpation of the thyroid, with its consequent risk of myxœdema, had called attention to the fact that in most cases the new growth of thyroid tissue or of neoplastic elements could be readily separated from the normal gland tissues. To do this, it is only necessary to cut through the overlying stratum of healthy thyroid until the capsule of the tumor is reached when enucleation can easily be accomplished. The divided gland tissue may give rise to considerable venous oozing, but this is easily controlled. Socin's experience embraces now over fifty cases without any cachexia strumapriva following. In the case presented by Dr. Weir the tumor was found in the person of a dwarf of twenty-one, who was defective mentally, and had an appearance suggestive of commencing myxœdema, and in whose neck, on the left side, was an enlarged irregular thyroid gland which had existed since infancy. On the right side there was no general enlargement of the gland to be seen or felt, but nearly on a level with the larynx was a roundish movable tumor the size of a hen's egg, which had appeared within the past eighteen months, and which caused considerable pain on that side of the head. It was also increasing in

size. It moved with the trachea in swallowing. It was explained to the mother, who was anxious to have all the growth removed, perhaps for a commercial reason, that this ought not to be attempted, and that only the swelling, now increasing in dimension, could be interfered with. An incision was made vertically over it, the thyroid gland reached, and its substance, of a deep red color, cut through to the depth of more than a quarter of an inch until the tumor was exposed freely, when with the end of the scalpel and with the finger-nail the enucleation of an hour-glass-shaped growth two inches long and three-quarters of an inch wide was promptly accomplished. The venous oozing from the substance of the thyroid gland was easily checked by clamps and ligatures, and the cut gland edges sewed together except at the lower end, where a drainage tube was inserted, and then the skin cut was sutured in a similar manner. Secondary union occurred.

The following is the report of the pathologist, Dr. Peabody:

The main tumor is spheroidal in shape and in great part surrounded by delicate fibrous capsule. It is about three-quarters of an inch in diameter. Connected with it is a smaller one of same color, consistency, and general character. It is very friable, not easily cut for microscopic examination. Sections show it to be divided into lobes which present the appearance of compound racemose gland, with tubes and ducts lined by cylindrical epithelium. The general epithelium of the gland is shapeless. Diagnosis, adenoma.

SARCOMATOUS FLOATING TUMOR OF THE KNEE-JOINT.

DR. WEIR presented a sarcomatous pedunculated tumor which he had removed, October 23, 1886, from the left knee-joint of an Italian aged forty-two years, who had had disability in that articulation for several months. At first beginning as an ordinary synovitis, to this were supplemented soon sundry painful "catchings" of the joint, with aggravation each time of the difficulty in walking. On the inner aspect of the knee could be felt a movable, rather hard body the size of the end of the forefinger, whose excursions were limited to that side of the joint in an area corresponding nearly to the upper limit of the patella. On making an incision, under carbolic spray, down to the mass previously fixed by a tenaculum, it was found to be, instead of cartilage, a reddish-yellow tumor about an inch long, attached by a slender pedicle which, after being tied with catgut was severed, and the growth removed. The wound was not sutured but dressed antiseptically and the limb secured in a posterior splint. No reaction followed, and at the end of ten days the dressings were taken away, and the patient allowed to move his limb cautiously about the bed. A week later he began to walk. On November 22d, when the patient was fit to be discharged from the hospital, without any intimation he leaped from the window of his ward and fell a distance of four stories and killed himself. Among his other injuries a compound fracture of the left tibia occurred. The tisues of the joint were carefully examined microscopically to see if any changes similar to those observed in the tumor removed by the operator existed, but none were found. The reason for this was that the movable body was reported by the pathologist to be a fibrosarcoma. His statement in detail is as follows:

Pathologist's Report.—The tumor presented for examination is flattened, caudate, and measures 2 x 1 x ½ centimetres. It has been incised over its whole length. It weighs five grammes. Microscopic examination reveals it to consist of fibrous stroma with varying amounts of small spindle cells. In some places these lie close together; in others they are few and scattered. It also contains numerous arteries with normal walls, and there is a great deal of blood-pigment scattered generally through the tissue.

As this is apparently the first case in which a post-mortem examination has been held, it is interesting as confirming the statement made in a recent article published by Dr. Weir on this subject, that clinically it is sufficient to remove the offending mass. His first case, operated on in 1884, is still free from recurrence, and lends additional support to this view.

LAPAROTOMY FOR SUPPURATIVE PERITONITIS FROM ACUTE PERFORATION OF APPENDIX VERMIFORMIS.

DR. WEIR exhibited the cæcum and stump of an appendix vermiformis fistule closed by several silk sutures, which had been obtained from the post-mortem of a laparotomy case operated on by him December 6th, and the details of which, taken from the hospital note-book, were as follows:

Edward V., aged twenty, single, Canadian, was admitted to the New York Hospital, Medical Division, Dr. Vought, House Physician, December 6, 1886, with the history that he had been well till seven days ago when, on account of headache, he took two cathartic pills without relief. At this time he was exposed a good deal to cold and wet. He kept on taking cathartic pills and had following this an attack of diarrhœa. Four days ago he began to have pain in the abdomen which grew more more and severe, especially in the right iliac region. He has also had some cough, and vomited eight or ten times during the past week. Last night he had a severe and this morning more severe and general pain in abdomen.

Examination.—Abdomen swollen and very tender on slight pressure. Breathing entirely thoracic. Patient lies in dorsal decubitus; knees not constantly drawn up. In right iliac region there is a feeling of resistance and over this a slight dulness. Over the rest of the abdomen the resonance is tympanitic. The abdominal muscles are rigid; splenic area large. A needle inserted into right iliac fossa the depth of one and one-half inches draws sero-purulent fluid. Posteriorly, on left side and low down, inspiration is rough and a few rough râles are heard over chest. Temperature 102.8°; pulse 135; respiration 32 at 4 P. M.

Transferred to surgical division, Dr. Hughes, House Surgeon, at 9 P. M. Operation by Dr. Weir. On examination after etherization no marked dulness or swelling was found in the iliac fossa, but an aspirating needle inserted near previous puncture in right iliac region withdrew pus with the needle *in situ;* for a guide an incision two and a half inches long was made just above Poupart's ligament upward and outward and extending beyond the superior spinous process. On opening into the abscess cavity considerable watery pus flowed out. By digital examination it at first appeared as if the abscess had been limited on its inner side by the adherent coils of intestines, which could be plainly felt.

The unusual amount of discharge, however, led to a more free examination, and it was soon recognized that the general cavity of the peritoneum was involved in a suppurative peritonitis.

A median laparotomy was then decided on. An incision was made on the median line about six inches long; afterward enlarged so as to extend from symphisis to three inches above umbilicus. The parts were found very much congested. There was a large exudation of pus with free soft adhesions. The intestines were partially taken out and laid in hot towels and the right side of pelvis carefully examined. A perforating ulcer was found at root of vermiform appendix on its free surface, posteriorly throughout its whole length it had a mesenteric attachment. In order to occlude this satisfactorily the entire appendix was tied off with catgut and the stump ligated and covered in by peritoneum, by several Lembert's sutures made with fine black silk. The abdominal cavity was thoroughly douched with warm water and intestines replaced, and a duplication of iodoform gauze was inserted in the midst of the intestines, in the iliac fossa, and in the pelvis (Mikulicz's method). A large rubber drainage tube was also introduced in iliac fossa through first wound, and another into the pelvis through the lower end of the median incision. The median incision was sewed together with strong silk. Bichloride compresses and cotton dressings were applied, all secured by a binder. No intestinal concretion was detected in the appendix or in the peritoneal cavity.

The patient's condition grew rapidly worse during operation; administered fld. ext. digitalis ♏ iv, and whiskey ℥ij hypodermatically, and per rectum, atropine gr. one-forty-eighth, with firm bandaging of the extremities. At termination of final dressing his condition was encouraging, color good. Pulse 185 and moderately strong at wrist. Immediately after the operation was given a hot air bath and hot water bottles were placed around him.

12 midnight, temperature 101.2°, pulse 180, respiration 34; an enema of milk ℥ij, whiskey ℥j. Ordered tr. strophantus ♏iij and brandy ℥ij, every three hours by mouth, and whiskey by mouth and by rectum.

Dec. 7. 3 A. M. Administered hypodermatic of Majendie ♏ iv. at 11 P. M. to quiet restlessness. This was repeated at 1.50 A. M.

3 A. M. Temperature 102.8°, pulse 80, respiration 24.

3.30 A. M. Died.

The post-mortem showed that the peritoneum was intensely congested and covered with recent lymph. There was about one drachm of pus in the pelvis. The spleen was a trifle enlarged. The omentum was rolled up toward the transverse colon. The mesenteric glands were large. The stomach was normal. The common bile duct was pervious. Mucous surface of the duodenum was normal. Some of Peyer's patches were pigmented. The mucous surface of small intestine otherwise normal.

The vermiform appendix had been removed and its attachment to the cæcum apparently closed by a ligature. The surgically removed vermiform appendix was markedly thickened by a swelling of all its coats. Its interior was lined by a thick ragged false membrane and there was a perforation near its attached end. The right lung, on its anterior aspect, showed evidence of recent pleuro-pneumonia.

Dr. Weir remarked that there were two points connected with this case of particular interest. One was the difficulty of determining without exploratory iliac incision and sometimes even after this was done, whether or not the typhlitic abscess was yet a local affair. Peritoneal symptoms were not unfrequently seen with perityphlitic inflammations, especially with that variety which resulted in limited peritoneal abscess. It is possible to get pus by an exploring needle from a collection not recognizable to palpation and it is also possible, and it nearly was accomplished in this case, to open into the general peritoneal cavity and yet be deceived into thinking it a localized abscess. The absence of tumor and profuseness of thin sero-pus led to a renewed and thorough examination which had, until then, been refrained from lest limiting protective adhesions should be broken down. The second point was the treatment of the perforated appendix. Should the sloughy opening be trimmed off and its edges inverted and closed as in an intestinal perforation and the appendix preserved, or should it be boldly removed as in his case? The closeness of the perforation to the cæcum interfered with his desire to cut away the sloughy edges left even after the excision of the appendix, but where practicable this, he thought, should be done before the Lembert sutures were applied. He, however, knew that simple ligation without peritoneal inversion had frequently sufficed where the appendix had been removed in this and other difficulties. He favored the usual extirpation of the appendix as not adding to the risk and as preventing future trouble.

DR. SANDS believed that in the vast majority of cases of what we term peritonitis, which terminates in abscess, the disease arises externally to the peritoneal cavity. He had operated for perityphlitis a great many times, but had never yet found a circumscribed abscess bounded simply by coils of adherent intestine. He was aware that such is a common view, but he believed it to be inaccurate. He also had observed that when perforation of the appendix occurred into the serous cavity the result was invariably fatal. A short time ago a case came under his observation in which the symptoms of circumscribed tumor were wanting, but in which there were present marked pain and tenderness in the cæcal region. In that case, upon incision through the abdominal wall over the seat of tenderness, a small amount of pus escaped; and on putting the finger into the opening the feeling of intestine was imparted. The patient died a few hours after the operation, and no examination was made post-mortem.

DR. BRIDDON remarked that he had made autopsies in three cases where death occurred in from twenty-four to thirty-six hours, from perforation of the appendix; there were no limiting adhesions but general profuse peritonitis; no formation of an abscess at all, as he did not think there was time.

DR. SANDS said, in reply to Dr. Weir's remarks, that he had carefully explored many cases of perityphlitic abscess, but had never found a boundary wall of intestine; he had felt the colon and the cæcum at the bottom of the wound, but had only been able to recognize bare intestinal coils in a very few cases in which there was no circumscribed abscess, and in which he could determine the presence of pus within the peritoneal cavity.

In one instance he was called in consultation to see a

gentleman who was said to have had symptoms of perityphlitis. But, at the time of his visit the tumor in the cæcal region had subsided and the patient was almost comatose. The cause of the coma proved to be meningitis, and at a post-mortem the subsidence of the tumor was found to be due to the pus having travelled within the sheath of the psoas muscle, the intestinal walls forming no part of the boundary of the abscess. As regards Mr. Treeve's investigations, he would not dispute their accuracy, but he could not advise very early operative procedures, as he had seen so many of these cases terminate favorably without incision; a few tumors had ruptured spontaneously, but the majority had subsided without evidence of rupture. He believed that very few cases would be injured by being allowed to remain for a week or ten days, according to the local symptoms; the speaker, however, considered that to operate always within two or three days from the onset of the disease would be much like performing laparotomy for every case of pain in the abdomen.

THE PRESIDENT asked Dr. Sands if he did not think the use of the exploring needle of advantage in these cases of perityphlitis, before the end of a week or ten days, in order to enable the surgeon to decide as to the date of operation.

DR. SANDS replied that, so far as his experience went, he had always found it safe to wait. He deprecated early operations, first, because they might be unnecessary, and secondly, because they might be unsafe. Regarding the first point, he had seen a large number of cases in which the inflammatory swelling had subsided without any surgical operation, and the patients had got well. The danger of spontaneous opening of the abscess at an early period into the peritoneum he believed to be exaggerated, and to be unsupported by clinical facts. He could recall but a single instance in which such a rupture had occurred as early as the seventh day of the disease.

Concerning the second point, namely, the risk attending early operation, he believed it to depend on the liability of the entrance of the fetid contents of the abscess into the peritoneal sac. He thought that perhaps he had not made himself clearly understood when he had contended that circumscribed perityphlitic abscesses are usually external to the peritoneum. He did not mean to deny the anatomical relations of the cæcum, which he thought are generally understood. But he failed to see why the almost complete investment of the cæcum by the peritoneum, or the presence of a mesentery attached to the appendix vermiformis, should determine the entrance of fecal matters escaping from a perforated appendix into the peritoneal cavity. His supposition was, that in cases of circumscribed abscess due to such perforation, this was preceded by adhesion of the serous membrane covering the appendix to that lining the iliac fossæ, and that thereby the latter was lifted by the pus and fecal matter and the invasion of the peritoneal sac prevented. But adhesions would not usually be limited to the perforated appendix; it would often involve the peritoneum covering the cæcum, the abscess, and the back of the anterior abdominal wall. Such adhesions, however, would be absent at an early period, and hence one danger connected with early incision. He remembered several cases in which the presence of pus had been demonstrated by the use of an aspirating needle, and in which an incision made carefully along the latter held *in sitû*, opened the peritoneal sac, adhesions not having yet taken place. After closing the opening made in the serous sac, adhesion ultimately occurred, and the abscess evacuated its contents externally with safety, and without further surgical operation.

It is fair to presume that the simultaneous opening of the peritoneal sac and the cavity of the abscess might have been followed by a fatal result. Dr. Sands would not dispute the desirableness of an early evacuation of the contents of a perityphlitic abscess, but he thought that the danger attending such operations should be duly weighed. Another reason for delay is that even when the peritoneum covering the abscess does not become adherent to that lining the back of the anterior abdominal wall, the line of reflection may be pushed upward by the growing swelling, so as to be above that generally selected for incision.

DR. BRIDDON remarked that a patient in the service of Dr. Andrew H. Smith was referred to him, in whose case there was a swelling, the most prominent portion of which appeared to be about three inches above Poupart's ligament, with a zone of less resistance immediately above the ligament. An aspirating needle was introduced one inch above the ligament and gave exit to pus; it was left in position and the usual incision was made. When the transversalis fascia was reached it was found that the peritoneum had not been pushed up by the abscess and that the needle consequently had passed through two of its layers. It was displaced upward by the fingers until the cavity of the abscess was opened without further implication of the peritoneum than that caused by the needle. The patient made a prompt recovery.

THE PRESIDENT asked, if, given a case where there was no appreciable tumor, symptoms should lead to the use of the needle and pus be detected, would there be greater danger of opening the peritoneum at that time than in operating for ligation of the external iliac artery, the incision being made close to Poupart's ligament?

DR. SANDS thought it would be possible but considered that it might be more difficult in consequence of morbid alterations due to inflammation.

DR. BRIDDON said that he had regretted operating early in one case which was under the care of the late Dr. Wm. C. Hunter. The swelling was situate deep in the iliac fossa, and aspiration gave exit to pus. The needle was left *in situ*, and after division of the muscular and aponeurotic coverings by the scalpel, further separation was made by the fingers until a cavity was reached at a very considerable depth from the surface. It contained only a small amount of pus. It was drained and dressed in the usual way, and everything went well for forty-eight hours, when he developed an acute and rapidly fatal peritonitis.

DR. WEIR was unwilling to let the remarks of Dr. Sands pass unchallenged. He could recall three instances that had occurred tolerably recently in which, after the abscess had been opened, he could feel with his finger toward the median line several coils of small intestine which, glued together, made up the inner wall of the abscess. Moreover, the extensive researches of Treves utterly disprove the old idea of the cæcum and appendix being continuous, posteriorly or otherwise,

with the subperitoneal alveolar spaces. In fact, in a hundred dissections made by this English observer he had never yet seen the posterior surface of the cæcum uncovered by peritoneum, nor had he encountered a meso-cæcum. The reality is that in the great majority of cases the entire beginning of the large intestine is completely surrounded by peritoneum up and upon the ascending colon. Moreover, the mesentery of the appendix is derived from the ilium in nearly every instance where it existed. Hence, perforating appendicitis and the still more surely perforating cæcitis must primarily produce a peritoneal suppuration, limited or diffused, or else by the lucky occurrence of adhesion before the accomplishment of the perforation give rise thus to a subperitoneal abscess—the so-called paratyphlitis. Both varieties undoubtedly exist, but if it is admitted that the first form occurs, it is right that an evacuation of the matter should be had as soon as its presence is recognized. This can often be arrived at early by the use of an aspirator needle, or the question of time will generally decide surgical interference; this, in a consideration of over 250 cases, has been placed by Fitz at not later than the third day. With this doctrine he should agree certainly in those cases where the symptoms were marked and existed with persistent temperature elevation.

He believed that many of the cases that got well either evacuated themselves by the bowels or bladder or underwent absorption, which was not often, or were, what was more likely, cæcitis from fecal impaction and not of a suppurative character. Hence he had seen and learned to expect a ready subsidence of temperature heat after the administration of anodynes. Fitz, who had been just cited, was also firmly of the view of the intraperitoneal origin and seat of these abscesses. Bartholow, writing on the same subject, has taken a similar view. Individually he had never yet regretted operating too early in cases of right iliac inflammatory tumors.

His impression of the site of such abscesses had been formed for many years, he having been led to the investigation by once witnessing the occurrence of a rupture of a perityphlitic abscess into the general peritoneal cavity under very slight palpation of the tumor, with a rapidly fatal issue without surgical interference as the accident took place before the general use of laparotomy. Dr. Weir concluded by reiterating the fact that if a laparotomy was necessitated for an advanced general suppurative peritonitis or even in the rarer cases of acute perforation of the appendix, by lifting out the intestine filling the right iliac fossa, the entire field of ulceration was fully brought into view, and that lesions difficult to detect at a post-mortem examination could be recognized in the living subjects quite readily by changes in color and consistence which were lost in cadaveric alterations.

Stated Meeting, December 22, 1886.

DR. L. A. STIMSON IN THE CHAIR.

DR. ABBE presented the following

NOTES ON THE OPERATIVE CLOSURE OF A LARGE LARYNGEAL FISTULA.

In December, 1885, a man aged forty-five years, presented himself for treatment of an opening in the side of his larynx immediately above the vocal cords, into which the end of one thumb could be thrust. In the month of April preceding, he had tripped while rising from his cobbler's bench with a shoemaker's knife in his hand, and had so stumbled that he fell upon the point of the knife, which was thrust well into the thyroid cartilage of the left side. It was an ugly gash and bled severely. He was carefully treated in the Bridgeport hospital at once, a tracheal tube was inserted and he says was worn a month. The hole in the cartilage was just above the vocal cord attachment and laryngeal inflammation probably followed and impaired his breathing. After another month an operation was performed to close the fistula by suturing, but was ineffectual.

He then came to New York and was subjected to five more attempts at closure by his physician at home. The methods varied: Sometimes silver wire sutures were used, after paring the edges; sometimes, silk. Twice were the harelip pins and figure-of-eight suture used. But after each operation mucus and discharges burst the wound open and left him more desperate than before. The successive parings of skin and cartilage had resulted, with what ulcerations occurred between times, in the sacrifice of a considerable portion of the left lateral half of the thyroid cartilage, the entire gap being nearly three-quarters of an inch, though the opening in the cartilage proper was five-eighths of an inch in diameter. The edges of the fistula were cicatrized and induration extended half an inch from the opening. Through this great gap one could get a most extraordinary view of the vocal cords in action. The anterior ends were attached first within the lower edge of the fistula on the median side, and when at rest the cords fell flat on either side and were lost in the mucous membrane. On attempted phonation they sprung into view and vibrated at an angle of thirty degrees with the horizon—afterward falling back to nearly the horizontal position.

This movement of the cords to assume this angle with the horizon when the patient is erect I do not find noticed in such authors as I have consulted.

Attempts to speak or make audible voice when the fistula was uncovered were futile. The voice being produced in the mouth and pharynx by the utilizing of sound of vibrating cords, it was vain for him to try to phonate when all the sound escaped from the side of the larynx. All he could do was to produce a fizzing or buzzing note like the sound one might make by blowing through a single reed of a reed organ. When, however, a flat pad covered the fistula completely, he could phonate perfectly though with a slightly husky tone.

I decided that by the following not very complicated plastic operation I could close the fistula, if I did preliminary tracheotomy to prevent expulsive efforts at coughing from mucus and air passing through the sutures.

Nov. 13, 1885, assisted by Dr. Bangs, the patient was etherized and tracheotomy done at the two upper rings. When the patient breathed well through the tube the glottis was stopped through the fistula with a sponge attached to a string drawn out through the mouth. The edges of the fistula were thoroughly pared. A broad elliptical space was then included between two incisions, *a*, *b*, being somewhat wider than the fistula and extending obliquely downward on the

patient's neck. A part of the included skin below the fistula was dissected up so as to make a flap on its upper edge, which, when turned over, more than covered the hole. The cuticle was then denuded from the part of this surface not wanted to cover the hole, and the rest of the elliptical space made raw for the reception of the overturned flap. The latter was then stitched over the fistula by two rows of fine continuous catgut; one row on the edge of the orifice tacking the surface of the flap at the circle of denudation, and the second on the outer edge of the flap fastening it to the outlying tissue.

The skin on either side of the neck was then undermined and slid over the flap mentioned, so as to meet directly over its centre. A lateral slash, 1¾ inches away, was necessary to relieve tension and served to admit a drainage tube.

Antiseptic compresses were applied and the sponge removed from the larynx by the mouth. The patient made a very comfortable recovery with primary reunion throughout. The tracheal tube was removed on the fifth day, and he was allowed to talk at the end of a week. He left the hospital with a perfectly solid larynx—and excellent phonation, which has been maintained.

DR. Abbe remarked that it seemed to be the general impression that this class of cases could not be cured.

THE PRESIDENT asked to what cause this supposed impossibility is attached; whether it is simply a mechanical one.

DR. ABBE thought it was owing to the air in respiration which broke down the union.

NEWS ITEMS.

A DECISION FAVORABLE TO MRS. PAVY.—All the friends of the late Dr. Pavy will be glad to hear that the Secretary of the Interior has reversed the decision of Commissioner Black on the claim of Lela Pavy, widow of Dr. Octave Pavy, late acting Assistant Surgeon, U. S. A., under contract with the Greely expedition, who died of starvation at Cape Sabine, about June 6, 1884. She is granted $17 per month. The Secretary holds that though Dr. Pavy's contract had expired he was still in the service.

A CERTIFICATE OF DISABILITY, issued by Dr. A. Y. P. Garnett to a government employee, was returned by a United States pension officer, with the demand that the doctor should strengthen it with implicit information. Dr. Garnett declined to furnish this information, on the ground that it would involve the violation of professional obligations. In this decision he has been sustained by Secretary Lamar, who has thus established a precedent which petty courts and government officers will not presume in future to set aside.

PROF. CHEVREUL, the chemist, is about to resign his public offices and retire to Dijon to live with his family.

THE CHOLERA.—Ever since cholera first made its appearance at Toulon in June, 1884, it has, like a spectre, been hovering over Southern Europe. Fortunately, but for no well-defined reason, it has not extended to Northern Europe, although for three seasons it has been threatening to do so. In a recent number of the *Journal* (October 23d, page 772), we gave a summary of the havoc which cholera wrought in 1884 and 1885; and from that summary it may have been observed that the disease, once started at Toulon and Marseilles, seemed to radiate northward to Paris, and eastward throughout the Italian Peninsula; whilst Spain, to the southwest, was soon afterward invaded and terribly scourged. During the year just ended, however, the disease seems to have somewhat changed its point of attack, and has centred more particularly in the western and northern shores of the Adriatic, whence it spread north-eastward through Carniola and Croatia, to Agram, Raab, Pesth, and Szegedin; and south-eastward to Priedor and Novi in Bosnia, Belgrade in Servia, and even Tirnova in Bulgaria.

Cholera in Italy.—During December, 1885, sporadic cases were reported from Venice. This prevalence continued until the end of April last, by which time 116 cases and 80 deaths had occurred in the city since the beginning of the year. Early in May a sudden and rapid increase took place in the number of cases, and in the first week of June as many as 218 cases and 132 deaths were reported. The disease continued in Venice, with decreasing severity, until October, when the city was declared to be practically free from it. Altogether, not less than 1000 cases, with about 620 deaths, have occurred in the city during the past year. It may here be noted that in some quarters it was asserted that the Venetian disease was not true Asiatic cholera, whilst others describe it as "choleraic typhus." Meanwhile, however, an epidemic of undoubted Asiatic cholera was rapidly spreading in the south-eastern provinces of Italy. The disease broke out early in April at Brindisi, which is situated in a flat unhealthy locality, and by the 15th of that month 72 cases, of which 15 were fatal, had occurred in the town. From Brindisi it spread rapidly to the adjoining towns of Latiano, Francavilla, Fontana, Lecce, Bari, Barletta, etc., creating panic in the neighborhood, and anxiety in the whole country. The sanitary arrangements of these places seem to be bad in the extreme, and, at Latiano especially, the polluted wells are charged with having been mainly instrumental in spreading the disease. During the summer the towns of Chioggio, Treviso, Padua, Ferrara, Ravenna, and others in the valley of the Po, and in the neighborhood of Venice, suffered somewhat severely from choleraic sickness. A few cases occurred at Torre Annunciata, near Naples, early in September, and at Rome in October. In September, Sardinia was invaded, but, although the disease was virulent in character, it does not seem to have diffused itself widely in the island. In the middle of October, cases were reported from Genoa, and further cases followed during November; but no cases appear to have occurred in the town, or, indeed, in the whole peninsula, since the 27th of the last mentioned month. It is estimated that up to the middle of October, when cholera as an epidemic may be said to have come to an end in Italy, 21,000 cases and 8650 deaths had occurred throughout the peninsula. Some towns of Italy seem to have profited by their past experiences of cholera, and by the teachings of the Roman Sanitary Conference of last year. In Rome itself nearly all the wells have been filled up, and a wholesome supply of water provided, much to the benefit of the public health. Naples also seems to be improving its hygienic conditions. But at Florence, where it is as-

serted that the well-waters are very generally grossly polluted, and that cesspools of the worst sort prevail, there seems still to be great reluctance to effect the needed sanitary improvements.

Cholera in Austria-Hungary.—In December, 1885, occasional cases of cholera were occurring in Trieste, a town of about 135,000 inhabitants, situated at the extreme north of the Adriatic Sea, and of special importance as constituting the centre of Austrian foreign commerce. The disease died out in this town about Christmas, 1885, but broke out again on June 7th last, and from this centre rapidly spread through Fiume, Istria, Carniola, Gorizia-Gradisca, Croatia, and Dalmatia, and into Bosnia and Servia. It is officially reported that, up to the middle of November, when the virulence of the epidemic may be said to have passed, about 900 cases, and 550 deaths, occurred in Trieste alone, and that in the province of Istria 672 cases, and 374 deaths, had occurred. Bad hygienic conditions prevail in all these districts. In some places the populace are reported to have been guilty of acts of barbarism, such as were common last year in Spain. They accused the local doctors of poisoning them, and in some cases actually resorted to violence. On September 12th cholera broke out in Pesth, where its advent had for some time been dreaded. It rapidly spread, owing to the execrable sanitary arrangements of the town, and before it died out, about November 20th, more than 1200 cases, and 500 deaths, had occurred. Very severe censures were passed on the unpreparedness of the town to resist the cholera. The water-supply was described as being at all times indifferent in quality and inadequate in quantity, and it was said that over 30,000 of the inhabitants—a tenth of the total population—lived in damp underground rooms, where ventilation, a proper supply of water, and cleanliness were impossible. The town of Raab, which is situated on a tributary of the Danube, and half-way between Pesth and Vienna, and Szegedin, which is about 100 miles south-east of Pesth, suffered to some extent at the same time as the Hungarian capital. As in the case of Venice, some doubts have been expressed as to whether all the cases at Trieste returned as "cholera" were cases of the true Asiatic disease, and it has been noticed as a significant fact that during the summer no cases of diarrhœa or dysentery were recorded in Trieste, although those diseases are usually common there.

Cholera in Spain.—Spain has suffered comparatively little this year from cholera. In January the disease was still lingering in Malaga and Algeciras, where it had caused such great mortality during the previous summer; and during the first three months of the year a considerable number of cases occurred at Tarifa, not far from Gibraltar. But the disease seems then to have disappeared from Spain until October, when a fresh crop of doubtful cases was reported from Malaga.

Cholera in France.—France also has had but little cholera this year, but the little it has had, occurring as it did in the Department of Finistère, close to our own shores, has had especial interest for England. No cases, so far as is known, have occurred in Finistère since May last; but during the first four months of the year the disease undoubtedly prevailed to an appreciable extent at Brest, Concarneau, Douarnenez, Audierne, and other places in that locality.

Cholera in Japan and the Corea.—Whilst we have been watching the progress of cholera nearer home, the disease seems to have been ravaging the greater part of the Corea, and to have caused great mortality in Japan. Exact statistics are not yet obtainable, but it is reported that in Japan not less than 50,000 persons have been attacked, and 35,000 have died; whilst in Corea the population has been decimated.

Cholera in India.—India, the home of cholera, is never free from the disease; but during the past year there does not seem to have been any exceptional prevalence—at least in the three principal towns. As regards Calcutta, the fortnightly official returns during the first ten months of the year showed, as a rule, a mortality under the average of the previous five years; but since October 25th there has been a rapid and considerable increase in the cholera mortality in that city. From January 1st to December 8th, altogether 1553 deaths from cholera had occurred in Calcutta, as compared with 1836, the mean for the same period of the preceding quinquennium. In Bombay, during the same period, only 15 deaths occurred, as compared with 510, the mean of the same period of the previous five years. No deaths seem to have been recorded in Bombay during the months of July and August, and none since September 29th. In Madras, no death had been recorded since February 13th last.—*British Medical Journal*, December 25, 1886.

MEDICO-LEGAL QUESTIONS IN RELATION TO THE LAW OF DIVORCE.—The medical witnesses in the Colin-Campbell case, which has unfortunately occupied so much of the public attention, have been subjected to much and severe animadversion by counsel on grounds which appear to be entirely without foundation. The medico-legal aspects of the case raised some new questions of considerable importance, and the decisions in this and the previous trial establish conclusions not previously arrived at in any case hitherto tried.

The medical evidence was given throughout on both sides with great judgment and scrupulous accuracy, and appears to leave no room for cavil. From the facts stated in evidence, it appears that the husband had been operated on, both before and after marriage, for perineo-urethral fistula, due to gonorrhœa contracted in earlier life. In consequence of the condition of the husband, marriage was not consummated until four months after the ceremony. A fortnight after this consummation the wife suffered from a persistent vaginal discharge. She subsequently suffered from an attack of cellulitis. After she had recovered from this, the husband proposed to resume cohabitation; the wife refused, and ultimately appealed to the Court for protection. The trial took place in 1884, before Sir James Hannen, who, having heard the evidence of all concerned and numerous skilled witnesses, considered that she should be protected; the jury agreeing to that view, he gave judgment accordingly. This was appealed against, but the upper Court confirmed the judgment. This judgment was novel and important; it established this point, that the result of a former specific attack continuing, and being liable to injure the wife, would entitle her to a judicial separation. And it may, perhaps, be assumed that the same rule would hold good for both sexes. It appears that the judge did not

require, in order to establish "cruelty," that there should be a recent specific infection. In this case, the surgeons called considered that pus would run along the urethra in cohabitation, and this they held would be fraught with danger; this view is in accordance with all modern teaching. Gynecologists recognize that serious inflammatory attacks, and irritations of the genital tract are liable to follow cohabitation with those who have had gonorrhœa, although all specific conditions have disappeared. This judgment is far-reaching, but was, during the second trial, held to be a good one, which could not be disturbed. The question naturally arises, What length of time elapses before a specific attack (gonorrhœa) can wear itself out? This question did not affect the judgment above mentioned; but it is of much practical interest, and, in view of this judgment, important.

In the second trial, attempts were made to reopen the case, but these were checked by the judge. Another theory was, however, put forward as a possible explanation of the cellulitis; this was a suggested miscarriage shortly before the inflammatory attack. The consultant, however, who saw the case seven days after this was alleged to have taken place, not only did not find the slightest evidence of miscarriage, but, on the contrary, found the os and cervix in accordance with the nulliparous state. Later on in the case, in dilating the cervix, it was ascertained to have the characters of congenital stenosis. The evidence on the other side was largely based on the suspicions of a nurse who *thought*, from the occurrence of severe pain and a free hemorrhagic discharge, that a miscarriage had occurred—a suggestion negatived by the medical evidence and easily rejected by both judge and jury. Every medical man is aware that cellulitis is very frequently associated with severe pain and free discharge, and the freer the discharge the less the internal swelling, this being nature's mode of relief. This and other phases of the case emphasize anew the risks which beset practitioners in their daily work, and the necessity for the strictest observance of professional discretion in their relations to patients of whatever position in life.—*British Medical Journal*, December 25, 1886.

THE MONTEFIORE HOME FOR CHRONIC INVALIDS took in last month close upon $180,000 at its fair in the N. Y. Central Park Garden in two weeks.

THE LIBRARY OF THE LATE FRANK HASTINGS HAMILTON, M.D., LL.D., has been sold to Dr. John B. Hamilton, Supervising-Surgeon-General U. S. Marine Hospital Service, Washington, D. C. The specimens have been purchased by the U. S. Army Medical Museum. The original specimens, of which illustrations are given in the doctor's world-renowned and classical work *On Fractures and Dislocations*, are to be found in this collection. The instruments were sold at private sale.

NOTES AND QUERIES.

A SOURCE OF WELL WATER POLLUTION.

AFTER a severe thaw in March, 1885, my attention was called to a suspicious drinking water. I found that the well from which the water was obtained was situated near a barn. There were heavy falls of snow during that winter, and many times the snow was not removed from the curb. Horses were watered from this well. In his journeys back and forth from the stable, the hired man did not properly clean his boots of manure, etc.; hence the snow on the curb and adjacent ground was polluted. In consequence of the thaw the polluted snow and ice, as it melted, percolated through the cracks in the wooden curb. The water of the well was examined, with the following result:

Color, yellow; taste, good; turbidity, marked; odor, ammoniacal.

Quantitative parts per 100,000.

Suspended solids	1.000
Volatile matters after incineration and recarbonating	9.500
Sodium chloride	5.445
Magnesia	0.627
Calcium carbonate	9.140
Sodium sulphate	2.748
Silica	1.540
Total solids upon evaporation	30.000

The solids, upon incineration, turned intensely black. From lack of time, "free and albuminoid ammonia" were not ascertained. The water was condemned on the authority of Parkes, who says, "Of the solids, not more than about one grain per gallon (1.04 per 100,000) ought to be volatile, or capable of being driven off by a red heat The solids should blacken very slightly on ignition."

Careful investigation has convinced me that the danger of contamination from the above mentioned source cannot be overestimated. I have repeatedly witnessed accumulations of polluted snow around wells. The necessity of keeping well curbs free from such filthy accumulations would seem to be self-evident.

CHARLES E. FAIRMAN, M.D.

LYNDONVILLE, NEW YORK.

GENERAL FARADIZATION AND CENTRAL GALVANIZATION.

To the Editor of THE MEDICAL NEWS,

SIR: In a lecture by Dr. Bartholow, in your issue of December 18th, on "Electro-therapeutics," I notice errors of statement which are, it seems to me, deserving of correction. He says, I doubt not with all honesty of intention, that "general faradization first proposed by Dr. Beard;" and further on, "Central galvanization, which we also owe to Beard," etc. Dr. Beard is dead, it is true, and cannot speak for himself, but he was my friend, and I should be the last to detract in any way from the credit due him. I recognize the fact that Dr. Bartholow's lecture was probably given in an offhand clinical manner, and could not therefore be expected to abound in that accuracy of statement in small matters that we look for in written productions; but he will agree with me that whatever is worth saying at all is worth saying with exactness, and will pardon this note of correction. Central galvanization is perhaps due to one no more than to the other; our book certainly gives credit to neither over the other. As regards general faradization, however, the first formal presentation of it appeared in an article of mine published in the *Medical Record* in 1866, and in our work on the *Medical and Surgical Uses of Electricity*. The idea of the constitutional tonic effects of electricity and the method of general faradization by which these effects are obtained are distinctly attributed to me, and with Dr. Beard's full knowledge and accord. Yours respectfully,

A. D. ROCKWELL, M.D.

NEW YORK.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 4 TO JANUARY 10, 1887.

CORSON, J. K., *Captain and Assistant Surgeon.*—Ordered to Fort Cœur d'Alene, Indian Territory.—*S. O. 227, Department of Colorado*, Dec. 31, 1886.

MUNN, C. E., *Captain and Assistant Surgeon.*—Ordered to Fort Canby, Wyoming Territory.—*S. O. 227, Department of Colorado*, Dec. 31, 1886.

BANISTER, J. M., *First Lieutenant and Assistant Surgeon.*—Ordered to Fort Cœur d'Alene, Indian Territory.—*S. O. 227, Department of Colorado*, Dec. 31, 1886.

IVES, F. J., *First Lieutenant and Assistant Surgeon.*—Granted one month's leave of absence, with permission to apply for twenty-three days extension.—*S. O. 1, Department of the Platte*, Jan. 3, 1887.